3-1984

B801: Performance Evaluations of Potato Clones and Varieties in the Northeastern States 1983

H. J. Murphy

R. J. Precheur

Chang-Chi Chu

L. S. Morrow

O. S. Wells

See next page for additional authors

Authors
H. J. Murphy, R. J. Precheur, Chang-Chi Chu, L. S. Morrow, O. S. Wells, F. L. Haynes, R. H. Storch, R. Jensen, G. Dyer, D. A. Young, M. R. Henninger, E. C. Wittmeyer, Richard Tarn, J. B. Sieczka, R. H. Cole, R. A. Ashley, R. Loria, W. M. Sullivan, E. Kee, D. E. Halseth, and R. J. Young

ISSN 0734 9548

PERFORMANCE EVALUATIONS OF POTATO CLONES AND VARIETIES IN THE NORTHEASTERN STATES 1983

H.J. Murphy
L.S. Morrow
R.H. Storch
D.A. Young
Richard Tarn
R.A. Ashley
E. Kee

R.J. Precheur
O.S. Wells
R. Jensen
M.R. Henninger
J.B. Sieczka
R. Loria
D.E. Halseth

Chang-Chi Chu
F.L. Haynes
G. Dyer
E.C. Wittmeyer
R.H. Cole
W.M. Sullivan
R.J. Young

AGRICULTURE CANADA
CONNECTICUT
DELAWARE
MAINE
MASSACHUSETTS
NEW HAMPSHIRE
NEW JERSEY
NEW YORK
NORTH CAROLINA
OHIO
PENNSYLVANIA
RHODE ISLAND
VERMONT
WEST VIRGINIA

MAINE AGRICULTURAL EXPERIMENT STATION
UNIVERSITY OF MAINE AT ORONO 04469

Bulletin 801 **March 1984**

PERFORMANCE EVALUATIONS OF POTATO CLONES AND VARIETIES IN THE NORTHEASTERN STATES - 1983

H.J. Murphy, L.S. Morrow, R.H. Storch, D.A. Young, Richard Tarn, R.A. Ashley, E. Kee, R.J. Precheur, O.S. Wells, R. Jensen, M.R. Henninger, J.B. Sieczka, R. Loria, D.E. Halseth, Chang-Chi Chu, F.L. Haynes, G. Dyer, E.C. Wittmeyer, R.H. Cole, W.M. Sullivan, R.J. Young

AGRICULTURE CANADA

CONNECTICUT

DELAWARE

MAINE

MASSACHUSETTS

NEW HAMPSHIRE

NEW JERSEY

NEW YORK

NORTH CAROLINA

OHIO

PENNSYLVANIA

RHODE ISLAND

VERMONT

WEST VIRGINIA

Maine Agricultural Experiment Station
University of Maine at Orono 04469

Bulletin 801 March 1984

ACKNOWLEDGMENTS

The authors of this bulletin express appreciation to the persons who assisted in conducting the 1983 Cooperative Variety Trials. Our appreciation goes to the Maine Seed Potato Board for supplying all of the seedstocks from the Sangerville seedling increase and maintenance project. We also appreciate the cooperation of the Agricultural Research Service-USDA, Agriculture Canada, Cornell Potato Breeding Program, the Maine Potato Breeding Program, the Minnesota Potato Breeding Program, the West Virginia Potato Breeding Program, and the Wisconsin Potato Breeding Program for supplying new seedling stocks for increase at Sangerville. Appreciation is also due Agway, Inc. for arranging for transportation of seed and supplies to the various locations. Our sincere gratitude is extended to Mrs. Ruth Thompson, the Secretary who assisted in processing the data and typed the manuscript.

TABLE OF CONTENTS

PERFORMANCE EVALUATIONS OF POTATO CLONES AND VARIETIES IN THE NORTHEASTERN STATES - 1983

Agriculture Canada	New Hampshire	Ohio
Connecticut	New Jersey	Pennsylvania
Delaware	New York	Rhode Island
Maine	North Carolina	Vermont
Massachusetts		West Virginia

H.J. Murphy[1]	R.J. Precheur[5]	Chang-Chi Chu[11]
L.S. Morrow[1]	O.S. Wells[6]	F.L. Haynes[12]
R.H. Storch[1]	R. Jensen[7]	G. Dyer[13]
D.A. Young[2]	M.R. Henninger[8]	E.C. Wittmeyer[14]
Richard Tarn[2]	J.B. Sieczka[9]	R.H. Cole[15]
R.A. Ashley[3]	R. Loria[9]	W.M. Sullivan[16]
E. Kee[4]	D.E. Halseth[10]	R.J. Young[17]

Cooperative potato clone and variety trials were conducted at 23 locations to determine field, storage, and processing behavior of selected clones and varieties grown under soil, climatic, and cultural management common to the potato growing areas of 13 cooperating states and the Province of New Brunswick, Canada. These tests are all contributions to Regional Project NE107 entitled, "Breeding and Evaluation of New Potato Clones for the Northeast." The primary objective of this project is to determine clone stability over a wide range of soil, climate, and cultural conditions.

---

[1]University of Maine; Orono and Presque Isle, Maine.
[2]Agriculture Canada; Fredericton, New Brunswick, Canada.
[3]University of Connecticut; Storrs, Connecticut.
[4]University of Delaware; Georgetown, Delaware.
[5]University of Massachusetts; Amherst, Massachusetts.
[6]University of New Hampshire; Durham, New Hampshire.
[7]Vermont Department of Agriculture; Montpelier, Vermont.
[8]Cook College-Rutgers University; New Brunswick, New Jersey.
[9]Cornell University; Riverhead, Long Island, New York.
[10]Cornell University; Ithaca, New York.
[11]Agway Research Center; Tully, New York.
[12]North Carolina State University; Raleigh, North Carolina.
[13]Ohio Agricultural Research and Development Center; Wooster, Ohio.
[14]Ohio State University; Wooster, Ohio.
[15]Pennsylvania State University; University Park, Pennsylvania.
[16]University of Rhode Island; Kingston, Rhode Island.
[17]West Virginia University; Morgantown, West Virginia.

Varieties and clones grown in these cooperative variety trials were selected from the following categories:

1. Recently named or numbered seedling clones from other potato producing areas of the United States and Canada.

2. Standard varieties whose yield, quality, storage, and processing characteristics have been accepted for commercial production. These varieties serve as standards or check varieties for comparative purposes in the various trials.

3. Numbered clones from the USDA National Potato Breeding Program, the terminated Campbell Institute for Agricultural Research Program, the Canadian National Potato Breeding Program, the Maine Potato Breeding Program, and other breeding programs in Alaska, Idaho, Michigan, Minnesota, New York, North Dakota, West Virginia, Wisconsin, and the Province of Ontario.

4. Special purpose varieties for unusual disease situations, special markets, processing, export situations, starch production, and urban and small garden production.

5. Some older varieties requiring new performance data or re-evaluation at one or more locations.

In 1983, the cooperative variety trials provided the opportunity to compare new clones and varieties with commercially grown and accepted varieties for horticultural characteristics, yield, field resistance to a broad spectrum of diseases, processing capabilities for frozen french fries and potato chips, storage ability at various temperatures, and tuber appearance. The opportunity also existed for the potato breeders to observe stability of their clones and varieties over a range of growing conditions even though the

accumulated performance data were inconsistent among varieties. Because of unfavorable weather and cultural conditions at several locations, many clones and varieties did not receive a suitable performance test so should be included in the 1984 tests.

Seed sources for all clones and varieties reported in this bulletin were grown by the Maine State Seed Board in the Sangerville seedling increase and maintenance program.

MATERIALS AND METHODS

During 1983, 50 named and 39 numbered clones listed in Table 1 were grown in one or more of the 12 cooperating states and New Brunswick, Canada, as indicated in individual tables by test location. Varieties were hand planted at most locations except for New York where assisted feed planters were used for seed placement. Plot size varied from single 22-foot rows to double 20-foot rows with suitable alleyways between plots and buffer rows where needed. Row spacing varied from 34 to 40 inches between rows. Some locations used marker varieties in the alleyways but most locations did not plant alleyways. Replication varied from six in Maine and West Virginia to three replicates at a few locations. Seedpiece spacing in the rows and fertilizer rates used varied among locations and varieties grown. Notation of seedpiece spacing, fertilization rates, planting dates, vine killing dates, and harvesting dates used at each location is made in each table of yield data.

Entries at Presque Isle, Maine; West Virginia, Long Island and Tully, New York, and a few other locations were divided and tested by maturity groupings. In several locations russeted and long type tuber varieties were evaluated in tests separate from round tuber type varieties. Two locations conducted separate tests with all clones or varieties having colored skin as entries.

Cultural practices for each trial were supposed to be similar to those used by commercial growers at or near the test sites.

Tubers of all varieties at each location were harvested by replication, placed in temporary storage, and graded and sized later. Sizing and grading techniques varied by location. Some of the size data collected on tuber size distribution are not reported in this bulletin. Tuber samples were supposed to be retained from each test plot for specific gravity and, in most cases, for chip color determinations. At Presque Isle, additional samples were retained from each variety for appearance ratings, peeling and preparation losses, storage and sprouting studies, and other quality tests.

Specific gravities of replicated tuber samples from Maine, Pennsylvania, Vermont, and West Virginia; and composite tuber samples from Rhode Island and Canada were determined at Presque Isle, using the air and water method[18]. Most other locations determined specific gravities using the potato hydrometer method[19]. Total solids, when reported in the various tables of data, were calculated by the use of Von Scheele's equations[20]. Samples tested for specific gravity at Presque Isle were stored at 50-55°F. and used later for chip color determinations which were made in early December of 1983.

Chip color ratings, except from Tully, New York and Ohio, were determined at Aroostook Farm; Presque Isle, Maine.

Data from all locations except New York were analyzed by the Computing and Processing Services (CAPS) University of Maine at Orono.

DISEASE RESISTANCE

Information on disease resistance and/or tolerance for the varieties tested in the 1983 cooperative variety trials is presented

---

[18] Murphy, H.J. and M.J. Goven. 1959. Factors affecting the specific gravity of white potatoes in Maine. Maine Agricultural Experiment Station Bulletin 583, page 13.

[19] Ibid, page 15.

[20] Ibid, page 23.

in Table 1. The disease tolerances reported in Table 1 were determined in concurrent or previous disease tests conducted by USDA-ARS, Agriculture Canada, and the Maine Agricultural Experiment Station. The disease tolerance or resistance data in Table 1 do not indicate the degree of resistance or tolerance and are incomplete for many varieties. More detailed information may be available from the various agencies which conducted the tests.

In 1983, 23 varieties had resistance to late blight and eight had resistance to early blight. Thirty varieties had resistance to common scab and nine also had resistance to acid scab. Nineteen varieties had some degree of resistance to verticillium wilt, one to pinkeye, one to rhizoctonia, and two to stem end browning. Only five varieties had resistance to leafroll but 43 varieties had resistance to net necrosis. For resistance to other viruses, 22 had resistance to virus X, 16 to virus A, eight to virus Y, and one to virus S. Twenty-four varieties had resistance to golden nematode, seven presumably were tolerant to hollow heart, while two had resistance to fusarium and phoma tuber rot. One variety, Jemseg, had resistance to blackwart. Three of the varieties in Table 1 have no known resistance and eleven were listed as having unknown disease resistance. This last group of "unknowns" probably has not been in disease tests as of this date but will be tested in the near future.

These disease resistance notes in Table 1 suggest excellent progress is being attained in the development of potato clones with broad spectrum disease resistance. The reader should also note that late blight resistance reported in Table 1 is for the common race of *Phytophthora infestans* (Mont.) deBary. Multi-gene late blight resistance ratings are done in West Virginia but are not available at this time for publication.

YIELDS AND SPECIFIC GRAVITY

Canada

Total yield, percentage of yield in two market size classes,

Table 1. Characteristics of potato varieties included in the 1983 Northeastern Regional (NE-107) Potato Variety Trials.

Variety	Skin Color	Tuber Shape	Maturity Season	Eye Depth	Disease Resistance or Tolerance[1]
Acadia Russet	Russet	Ob.-Long	M. late	M	Fusarium, phoma, leafroll.
Alaska Russet	Netted	Ob.-Long	Late	M.S.	
Allagash Russet	Rus.-Netted	Oblong	Med.	S	Net necrosis.
Atlantic	Netted	Rd.-Oblong	Med.	S	Late blight, net necrosis, virus A and X, golden nematode.
Batoche	Red	Round	Med.	M.D.	Verticillium wilt.
Belchip	Cream	Round	Late	M.D.	Late blight, common scab, virus A and X, net necrosis, golden nematode.
BelRus	Russet	Ob.-Long	M. late	S	Verticillium wilt, net necrosis, leafroll, virus A.
Buckskin	White	Round	Late	S	Unknown.
Campbell 11	Buff	Round	M. late	M.D.	Verticillium wilt, late blight, virus A, golden nematode.
Campbell 13	White	Oblong	Med.	S	Late blight, verticillium wilt, net necrosis, virus A, golden nematode.
Caribe	Purple	Rd.-Oblong	V. early	M.D.	Common scab, phoma, virus Y.
Cent. Russet	Russet	Ob.-Long	Late	S	Unknown.
Chipbelle	Buff	Oblong	Late	S	Verticillium wilt, net necrosis, virus A and X, golden nematode.
Chippewa	Cream	Rd.-Oblong	M. late	S	Virus A and X.
Conestoga	White	Round	Med.	M	Leafroll, net necrosis, common scab.
Crystal	White	Oblong	M. late	S	Virus X, common scab, verticillium wilt.
Delta Gold	White	Round	M. late	S	Net necrosis, virus A, (yellow flesh).
Denali	Buff	Round	Med.	S	Frost resistance.
Green Mountain	White	Oblong	Late	M.D.	None.

Table 1 - continued

Variety	Skin Color	Tuber Hsape	Maturity Season	Eye Depth	Disease Resistance or Tolerance[1]
Hampton	Buff	Round	Late	S	Unknown.
Hudson	White	Oblong	Late	M.S.	Golden nematode.
Islander	White-Netted	Oblong	M. late	S	Common scab, golden nematode, net necrosis.
Jemseg	White	Round	Early	M	Virus S, X, and Y, blackwart.
Katahdin	Cream	Round	Late	S	Leafroll, net necrosis, virus A and Y.
Kennebec	White	Oblong	Med.	S	Late blight, net necrosis, virus A.
Michibonne	Buff-Netted	Round	M. late	M.S.	Unknown.
Michimac	Tan	Round	Med.	M.D.	Unknown.
Monona	White	Round	M. early	S	Verticillium wilt, virus A, X, and Y.
Nobless Russet	Russet	Long	V. late	S	Common scab.
Norchip	White	Round	M. early	S	Common scab.
Norland	Red	Oblong	V. early	S	Common scab.
Oceania	Buff	Round	M. early	S	Virus A and X, net necrosis.
Onaway	Cream	Oblong	Early	M.D.	Common scab, late blight.
Penn 71	White	Round	Late	S	Late blight.
Pungo	Buff	Round	M. early	M.D.	Late blight.
Red Pontiac	Red	Rd.-Oblong	Late	M.D.	None.
Redsen	Red	Oblong	M. early	S	Unknown.
Rhine Red	Red	Round	Med.	S	Unknown.
Rosa	Buff	Round	Late	M.D.	Pink-eye, early blight, golden nematode.
Russet Burbank	Russet	Long	V. late	S	Common scab.
Russette	Russet	Rd.-Oblong	Late	S	Verticillium wilt, net necrosis, virus A and Y.
Saco	Cream	Round	Late	M.D.	Net necrosis, late blight, virus A and X.
Sebago	Cream	Round	Late	S	Late blight, virus X.
Shepody	Buff	Long	M. late	M	Verticillium wilt, fusarium, phoma.

Table 1 - continued

Variety	Skin Color	Tuber Shape	Maturity Season	Eye Depth	Disease Resistance or Tolerance[1]
Simcoe	White	Round	Early	S	Common scab, late blight, virus A and X, golden nematode.
Superior	White	Oblong	M. early	S	Common scab.
Wauseon	White	Rd.-Oblong	M. late	S	Common scab, late blight, virus A and X, golden nematode, net necrosis.
Yankee Chipper	White	Oblong	Med.	S	Virus X, net necrosis, golden nematode.
Yankee Supreme	Cream	Rd.-Oblong	M. early	M.S.	Net necrosis, stem-end browning.
Yukon Gold	Yellow-white	Oblong	M. early	S	Leafroll, virus A and X, (yellow flesh).
AF92-3	White	Rd.-Oblong	M. late	S	Acid and common scab, net necrosis, stem-end browning, late blight, verticillium wilt, virus X.
AF201-25	White	Ob.-Long	M. late	S	Golden nematode, net necrosis, late blight.
AF222-1	White	Round	M. early	S	Net necrosis, common and acid scab.
AF236-1	White	Oblong	M. late	S	Net necrosis, early and late blight, common scab.
AF238-21	White	Ob.-Round	Med.	S	Net necrosis.
AF238-66	Buff	Rd.-Oblong	Med.	S	Net necrosis.
AF303-5	White	Round	M. late	S	Verticillium wilt, net necrosis, hollow heart, early blight, rhizoctonia.
AF307-5	White	Oblong	Med.	S	Net necrosis, late blight.
AF330-1	White-Netted	Round	M. early	S	Net necrosis, hollow heart.
AF332-9	Buff	Round	Med.	S	Verticillium wilt, net necrosis, golden nematode.
AS201-10	Buff	Round	M. early	S	Net necrosis, late blight, acid scab, golden nematode, hollow heart.
B5662-WV13	White	Round	M. early	S	Unknown.
B6043-WV6	Buff	Rd.-Oblong	M. late	S	Late blight.

Table 1 - continued

Variety	Skin Color	Tuber Shape	Maturity Season	Eye Depth	Disease Resistance or Tolerance[1]
B6928-WV14	White	Round	M. late	S	Unknown.
B6949-WV3	White	Round	M. late	S	Unknown.
B7019-WV1	Buff	Rd.-Oblong	M. late	S	Unknown.
BR5991-WV16	Buff	Round	M. late	S	Late blight.
BR7088-18	Buff	Round	M. late	M.D.	Common scab.
BR7093-23	White	Oblong	Late	S	Verticillium wilt, early blight.
C7232-4	Buff	Rd.-Oblong	M. early	S	None.
C7490-2	White	Oblong	M. early	S	Net necrosis.
C74109-8	White	Oblong	M. late	S	Late blight.
CF7353-1	Purple	Rd.-Oblong	M. late	M.S.	Early blight, verticillium wilt, net necrosis.
CF7358-14	White-Netted	Rd.-Oblong	Med.	M.S.	Golden nematode, acid scab, net necrosis, common scab, virus X.
CF7523-1	White	Round	M. early	S	Golden nematode, net necrosis, early blight, verticillium wilt.
CF7587-5	Buff	Oblong	Med.	S	Verticillium wilt, net necrosis, acid scab, common scab.
CF7688-9	White	Round	Med.	S	Net necrosis.
CF72107-15	White	Round	M. late	S	Net necrosis, early and late blight, golden nematode.
CF72111-5	White	Oblong	Med.	S	Net necrosis.
CF74135-3	White	Round	M. early	M.S.	Net necrosis, common scab, acid scab.
CF76183-2	Buff	Long	Early	M.S.	Late blight, common scab, net necrosis, virus Y.
CF77154-10	White	Rd.-Oblong	Early	S	Golden nematode, net necrosis.

Table 1 - continued

Variety	Skin Color	Tuber Shape	Maturity Season	Eye Depth	Disease Resistance or Tolerance[1]
F73008	Buff	Oblong	Late	M.S.	Late blight, (yellow flesh).
MN7973	Tan-Netted	Oblong	Med.	D	Common scab, hollow heart.
MN8224	Buff	Round	Med.	S	Common scab, hollow heart.
MN9319	Tan-Netted	Oblong	M. late	M.S.	Late blight, common scab, hollow heart.
NY59	Tan	Round	Late	M.S.	
NY64	Tan	Round	Late	S	
WF564-3	Russet	Ob.-Long	M. early	M.S.	Late blight, virus X, net necrosis, acid and common scab.

[1]Virus X is the latent mosaic virus, and in combination with virus A results in mild mosaic; and in combination with virus Y results in rugose mosaic.

Late blight resistance is to the common race of *Phytophthora infestans* (Mont.) deBary.

Net necrosis is a vascular ring discoloration in a tuber caused by current season infection with leafroll.

Table 2. Yield, percentage of yield between 1½ and 2½ inches, specific gravity, and percent total solids for 9 early crop potato varieties grown at White's Cove, New Brunswick, Canada - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Percent of Superior yield	Percentage of yield 1½ to 1-7/8 inches	Percentage of yield 1-7/8 to 2½ inches	Specific gravity	Percent total solids
Jemseg	158	128	15.4	84.6	1.067	17.47
Redsen	111	90	20.2	79.8	1.066	17.26
Superior	123	100	14.3	85.7	1.072	18.53
Yankee Supreme	116	94	26.4	73.6	1.069	17.89
AS201-10	124	101	33.2	66.8	1.063	16.63
B5662-WV13	82	67	23.8	76.2	1.060	15.99
C7232-4	117	95	17.7	82.3	1.072	18.53
CF74135-3	125	102	25.9	74.1	1.056	15.15
CF7523-1	98	80	31.1	68.9	1.069	17.83
Waller Duncan L.S.D. (0.05)	33					

[1]Planted - April 29; harvested - July 20, 1983.

Seedpieces of all varieties spaced at 10 inches apart.

Fertilization: 165-220-165.

Table 3. Yield, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 18 main crop potato varieties grown at Florenceville, New Brunswick, Canada - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Percent of Katahdin yield	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Conestoga	214	55	74.8	46.3	1.076	19.37
Crystal	359	93	81.4	54.3	1.074	18.95
Hampton	365	94	89.5	67.5	1.073	18.74
Islander	317	82	87.2	54.7	1.076	19.37
Katahdin	388	100	88.5	71.0	1.076	19.37
Kennebec	392	101	92.7	73.4	1.078	19.79
Russet Burbank	274	71	77.8	41.9	1.081	20.43
Russette	290	75	87.4	65.6	1.083	20.85
Yankee Chipper	281	72	69.6	32.7	1.084	21.06
AF236-1	302	78	86.9	67.6	1.084	21.06
AF303-5	378	97	90.1	74.3	1.081	20.43
B6949-WV3	355	91	90.9	74.0	1.075	19.16
BR5991-WV16	375	97	90.8	73.5	1.088	21.90
BR7088-18	286	74	79.6	51.7	1.084	21.06
CF7353-1	335	86	90.0	68.7	1.074	18.95
CF7358-14	286	74	86.7	69.6	1.075	19.16
MN9319	237	61	85.2	65.3	1.072	18.53
NY59	403	104	89.6	74.0	1.080	20.21
Waller Duncan L.S.D. (0.05)	47					

[1]Planted - June 6; killed - September 17; harvested - October 4, 1983.

Seedpieces of Russet Burbank were spaced 18 inches apart; all other varieties spaced 10 inches apart.

Fertilization: 135-180-135.

and specific gravities for nine early crop potato varieties grown at White's Cove, New Brunswick are presented in Table 2. Jemseg was the highest yielding variety followed by CF74135-3, AS201-10, and Superior. All varieties were quite low in specific gravity and tubers tended to be toward the smaller sizes.

Total yields, percentage of yield in two market grade size classes, and specific gravities for 18 main crop varieties grown at Florenceville, New Brunswick are presented in Table 3. Numerically, the five highest yielding varieties were: NY59 at 403 cwt. per acre followed by Kennebec, Katahdin, AF303-5, and BR5991-WV16. Seedling BR5991-WV16 also had the highest specific gravity of 1.084 followed by BR7088-18, AF236-1, Yankee Chipper, and Russette. Fourteen of the 18 varieties in this test had specific gravities of 1.075 or higher.

Connecticut

Yields, percentages of tubers in two market grade size classes, and specific gravities for 20 potato clones and varieties grown at Storrs, Connecticut are presented in Table 4. Even though yields were extremely low, Yankee Supreme, CF7523-1, Islander, NY59, and CF72111-5 did show some drought tolerance and produced much higher yields than the Katahdin standard. Specific gravities were the lowest recorded for the Northeast area in 1983 with no varieties approaching specific gravity of 1.075.

Delaware

Total yield and percentage of yield in two size classes for five potato varieties grown at Dover, Delaware are presented in Table 5. Seedling CF7523-1 was the highest yielding variety and B5662-WV13 the lowest at 90 cwt. per acre. Tuber sizes were small because of dry growing conditions. No specific gravity data were available.

Table 4. Yield, usable yield, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 20 potato varieties grown at Storrs, Connecticut - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Katahdin yield	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity[2]	Percent total solids
Acadia Russet	77	66	188	67.5	45.9	1.062	16.42
BelRus	46	40	112	69.6	42.9	1.071	18.32
Islander	126	108	307	64.9	38.3	1.061	16.21
Katahdin	41	37	100	77.8	32.8	1.055	14.94
Russet Burbank	39	30	95	75.2	38.5	1.061	16.21
Russette	75	61	183	78.0	42.7	1.067	17.47
Superior	83	65	202	64.4	36.5	1.065	17.05
Yankee Supreme	143	123	349	70.2	56.4	1.071	18.32
B5662-WV13	84	69	205	71.1	42.2	1.062	16.42
B6949-WV3	42	34	102	68.6	42.5	1.052	14.31
CF72111-5	115	101	280	78.4	52.6	1.069	17.89
CF7353-1	55	49	134	72.7	41.5	1.058	15.57
CF74135-3	95	67	232	66.0	34.6	1.051	14.09
CF7523-1	157	125	383	70.0	47.4	1.068	17.68
CF7587-7	71	63	173	75.6	39.7	1.073	18.74
CF77154-10	108	94	263	74.3	37.7	1.071	18.32
F73008	97	68	237	59.2	38.2	1.063	16.63
MN9319	73	59	178	66.6	39.6	1.065	17.05
NY59	123	95	300	68.1	31.3	1.063	16.63
WF564-3	65	57	159	75.0	37.0	1.058	15.57
Waller Duncan L.S.D. (0.05)	95	72					

[1]Planted - May 19; harvested - October 4, 1983.

Seedpieces of all varieties spaced at 8 inches apart. Fertilization: 210-160-160.

[2]Not replicated samples.

Table 5. Total yield and percent of yield in two tuber size classes for 5 potato varieties grown in Dover, Delaware - 1983.

Variety[1]	Total yield Cwt./A.	Percent of Superior yield	Percent of Yield	
			1½ to 2½ inches	2½ to 4 inches
Chipbelle	143	118	26.1	73.9
Jemseg	167	138	15.5	84.5
Superior	121	100	17.7	82.3
B5662-WV13	90	74	17.0	83.0
CF7523-1	210	174	11.4	88.6
Waller Duncan L.S.D. (0.05)	68			

[1]Planted - May 2; harvested - July 21, 1983. Fertilization: 175-175-225.

Seedpiece spacing: 9 inches apart in 36-inch rows.

Maine

Total yield, usable yield, percent tuber defects, percentage of yield in two market grade size classes, and specific gravity for the potato varieties grown at Presque Isle, Maine are presented in Tables 6 through 10.

The highest yielding early and medium early maturing varieties grown at Presque Isle, as shown in Table 6, were: CF7523-1, CF77154-10, Superior, AS201-10, and CF74135-2. After grading, the same ranking was there for usable yield. In this test, AF222-1 had the highest specific gravity followed by: CF77154-10, Superior, AF330-1, and CF76183-2. All varieties produced high percentages of tubers less than 2½ inches in diameter because of the very dry growing conditions.

The highest yielding medium maturing varieties grown at Presque Isle were: Kennebec, AF332-9, CF72111-5, and CF7688-9, as shown in Table 7. After grading, the ranking was about the same except CF72111-5 and CF7688-9 changed places. For the medium maturing varieties grown at Presque Isle, CF7688-9 had the highest specific gravity followed by: MN8224, CF72111-5, and Kennebec. Only three of the medium maturing varieties had specific gravities above 1.075.

The yields, defects, tuber size, and specific gravity for the medium late maturing varieties grown at Presque Isle are presented in Table 8. The five highest yielding varieties in terms of usable yield were: AF303-5, Kennebec, Michimac, Michibonne, and B6949-WV3. In this test, BR7088-18 had the highest specific gravity followed by CF7587-1, AF303-5, AF236-1, and Michimac. Twelve of the 15 medium maturing varieties in this test were 1.075 or higher in specific gravity.

Data for the eight late maturing potato varieties grown at Presque Isle are presented in Table 9. Hampton (NY63) had the

Table 6. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 10 early, medium-early maturing potato varieties grown at Presque Isle, Maine - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Superior yield	Percent defects[2]	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Redsen	250	226	92	3.8	90.4	19.5	1.076	19.37
Superior	280	246	100	6.3	87.7	29.7	1.088	21.90
AF222-1	242	207	84	9.1	85.4	18.6	1.092	22.75
AF330-1	259	225	91	9.1	86.8	49.9	1.084	21.06
AS201-10	271	232	94	6.8	85.4	22.5	1.077	19.58
B5662-WV13	193	175	89	3.8	90.7	31.0	1.074	18.95
CF74135-3	270	220	89	8.4	80.9	21.9	1.070	18.10
CF7523-1	320	288	117	4.0	90.2	23.7	1.079	20.00
CF76183-2	264	172	70	17.0	64.6	8.9	1.083	20.85
CF77154-10	297	266	108	7.0	89.3	37.4	1.090	22.33
Waller Duncan L.S.D. (0.05)	38	36					0.002	

[1]Planted - May 23; killed - August 30; harvested - September 13, 1983.
Seedpiece spacing: 8 inches for all varieties. Fertilization: 130-130-130.

[2]Includes sunburned, growth cracked, and tubers with second growth.

Table 7. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 8 medium maturing varieties grown at Presque Isle, Maine - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Kennebec yield	Percent defects[2]	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Kennebec	331	291	100	9.4	87.8	57.7	1.074	18.95
Rhine Red	298	264	91	5.6	88.6	50.8	1.069	17.89
AF307-5	283	261	90	5.8	92.1	39.9	1.073	18.74
AF332-9	327	291	100	7.2	89.2	57.7	1.073	18.74
CF72111-5	320	277	95	8.2	87.1	32.7	1.077	19.58
CF7688-9	313	283	97	5.9	90.6	56.8	1.087	21.69
MN7973	292	261	90	6.8	89.5	48.9	1.070	18.10
MN8224	220	199	68	4.5	90.2	37.9	1.086	21.48
Waller Duncan L.S.D. (0.05)	26	23					0.002	

[1]Planted - May 23; killed - September 6; harvested - September 15, 1983.

Seedpieces of all varieties spaced at 8 inches apart. Fertilization: 130-130-130.

[2]Includes sunburned, growth cracked, and tubers with second growth.

Table 8. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 15 medium late maturing varieties grown at Presque Isle, Maine - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Kennebec yield	Percent defects[2]	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Crystal	332	291	90	7.4	87.6	44.8	1.078	19.79
Kennebec	369	319	100	9.9	86.1	59.8	1.078	19.79
Michibonne	357	302	97	11.4	84.8	62.9	1.076	19.37
Michimac	338	314	92	3.1	93.0	52.6	1.076	19.37
AF201-25	307	270	83	6.9	87.7	37.2	1.079	20.00
AF236-1	310	263	84	12.8	84.6	49.7	1.080	20.21
AF303-5	359	322	97	6.8	89.5	47.6	1.082	20.64
B6928-WV14	316	277	86	7.2	87.6	45.9	1.074	18.95
B6949-WV3	353	296	96	11.3	83.9	57.9	1.078	19.79
B7019-WV1	295	261	80	9.1	88.2	44.0	1.067	17.47
BR7088-18	337	284	91	12.7	84.5	48.8	1.088	21.90
C74109-8	323	255	88	15.9	79.2	36.9	1.074	18.95
CF72107-15	311	273	84	9.6	87.5	49.8	1.079	20.00
CF7353-1	351	280	95	18.4	79.7	52.8	1.077	19.58
CF7587-7	282	229	76	12.3	81.2	21.4	1.084	21.06
Waller Duncan L.S.D. (0.05)	25	26					0.002	

[1]Planted - May 23; killed - September 14; harvested - September 23, 1983.

Seedpieces of all varieties spaced at 8 inches apart. Fertilization: 130-130-130.

[2]Includes sunburned, second growth, and growth cracked tubers.

Table 9. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 8 late maturing varieties grown at Presque Isle, Maine - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Hampton	375	337	98	7.3	89.7	61.5	1.075	19.16
Katahdin	381	333	100	9.8	87.0	62.6	1.078	19.79
Red Pontiac	412	324	108	19.4	78.5	57.3	1.069	17.89
Rosa	405	312	106	19.3	76.4	39.1	1.081	20.43
BR7093-23	366	310	96	11.8	84.9	44.1	1.081	20.43
F73008	383	312	101	16.6	81.4	42.6	1.080	20.21
NY59	384	328	101	11.1	85.3	56.3	1.077	19.58
NY64	391	296	103	20.9	75.7	36.1	1.075	19.16
Waller Duncan L.S.D. (0.05)	37	N.S.					0.002	

[1]Planted - May 23; killed - September 20; harvested - September 29, 1983.
Seedpieces of all varieties spaced 8 inches apart. Fertilization: 130-130-130.

[2]Includes sunburned, second growth, and growth cracked tubers.

highest usable yield followed by Katahdin, NY59, and Red Pontiac. Rosa and BR7093-23 had specific gravities of 1.081; and seven of the eight varieties in this test were 1.075 or higher in specific gravity.

Yields, specific gravity, and other data for four russeted potato varieties grown at Presque Isle are presented in Table 10. Russet Burbank had the highest total yield of 305 cwt. per acre but after grading was reduced to 257 cwt. per acre. Alaska Russet produced the highest usable yield of 270 cwt. per acre. Russet Burbank produced the highest specific gravity tubers followed by Nobless Russet, MN9319, and Alaska Russet.

Massachusetts

Yields, percentage of yield in two market grade sizes, and specific gravity for the 15 potato varieties grown at South Deerfield, Massachusetts are presented in Table 11. Growing conditions were very dry, as reflected in the yields reported. The four highest yielding varieties in terms of usable yield were: Yankee Supreme, Atlantic, CF7523-1, and Superior. In this test all specific gravities were quite low. Atlantic had the highest specific gravity followed by: BR7088-18, Yankee Supreme, and BelRus.

New Jersey

Yields, percentage of yield in two market grade size classes, and specific gravity for 29 potato varieties grown at Bridgeton, New Jersey are presented in Table 12. Judging from the yields reported in this test, lack of moisture caused the low yields. Seedling CF7523-1 had the highest yield of 224 cwt. per acre followed by: Yankee Supreme, C74109-8, Crystal, and C72111-5. Tuber sizes were very small, as shown by the percentages of tubers less than 2¼ inches in diameter. Specific gravities of potato varieties in this test were also very low with a high of 1.079 for Denali to a very low of 1.052 for Katahdin. None of the 29 potato varieties in this

Table 10. Yield, usable yield, percent defects, percentage of yield between 4 and 10 ounces, specific gravity, and percent total solids for 4 russeted potato varieties grown at Presque Isle, Maine - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of R.Burbank yield	Percent defects[2]	Percentage of yield 4 - 10 ounces	Specific gravity	Percent total solids
Alaska Russet	286	270	93	5.2	51.0	1.079	20.00
Nobless Russet	299	238	98	19.4	50.1	1.082	20.64
Russet Burbank	305	257	100	15.6	58.3	1.083	20.85
MN9319	270	245	88	6.6	60.3	1.080	20.21
Waller Duncan L.S.D. (0.05)	32	N.S.				N.S.	

[1]Planted - May 23; killed - September 26; harvested - October 7, 1983.

Seedpiece spacing: Alaska Burbank - 9 inches. Fertilization: 130-130-130.
Nobless Russet - 10 "
Russet Burbank - 16 "
MN9319 - 16 "

[2]Includes sunburned, growth cracked, and tubers with second growth.

Table 11. Yield, usable yield, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 15 potato varieties grown at South Deerfield, Massachusetts - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Katahdin yield	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Acadia Russet	114	110	113	74.9	11.9	1.066	17.26
Allagash Russet	106	93	109	69.0	13.8	1.066	17.26
Atlantic	154	145	159	77.8	30.8	1.081	20.43
BelRus	92	84	95	65.0	4.5	1.077	19.58
Caribe	18	15	19	80.9	33.8	1.062	16.42
Cent. Russet	92	85	95	71.1	10.4	1.073	18.74
Hudson	58	55	60	50.8	14.6	1.060	15.99
Katahdin	97	95	100	85.1	39.1	1.062	16.42
Russette	120	113	124	71.4	19.0	1.069	17.89
Superior	140	133	144	78.4	27.9	1.072	18.53
Yankee Supreme	172	165	198	85.0	27.8	1.079	20.00
BR7088-18	113	107	116	77.4	24.0	1.080	20.21
BR7093-23	115	112	119	75.8	22.3	1.073	18.74
CF7523-1	154	145	159	62.8	15.8	1.072	18.53
MN9319	122	107	126	72.5	26.8	1.070	18.10
Waller Duncan L.S.D. (0.05)	36	32				0.005	

[1]Planted - May 9; killed - August 15; harvested - August 31, 1983.

Seedpiece spacing: Allagash Russet spaced 10 inches; Centennial Russet - 12 inches; all other varieties spaced at 9 inches apart.

Fertilization: 150-150-150.

Table 12. Yield, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 29 potato varieties grown at Bridgeton, New Jersey - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Percent of Katahdin yield	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Caribe	159	93	81.8	10.3	1.067	17.47
Conestoga	170	99	85.2	28.1	1.062	16.42
Crystal	206	120	79.9	16.8	1.060	15.99
Denali	189	111	86.3	23.5	1.079	20.00
Hampton	180	105	91.0	34.1	1.060	15.99
Islander	175	102	79.2	17.4	1.067	17.47
Katahdin	171	100	85.1	31.5	1.052	14.31
Oceania	128	75	74.6	8.9	1.060	15.99
Redsen	120	70	74.8	8.2	1.059	15.78
Rosa	189	111	78.3	13.9	1.064	16.84
Superior	160	94	90.8	25.6	1.062	16.42
Yankee Chipper	204	119	75.3	10.4	1.069	17.89
Yankee Supreme	237	139	93.7	43.0	1.072	18.53
Yukon Gold	185	108	89.7	28.8	1.066	17.26
AF236-1	187	109	84.9	22.3	1.071	18.32
AF238-66	193	113	85.3	20.6	1.070	18.10
AF330-1	156	91	86.3	23.5	1.071	18.32
B5662-WV13	132	77	90.9	23.3	1.058	15.57
B6928-WV14	100	58	66.0	7.5	1.057	15.38
B6949-WV3	160	94	79.2	24.6	1.054	14.73
B7019-WV1	153	89	86.5	17.1	1.065	17.05
C74109-8	233	136	91.8	30.8	1.061	16.21
CF72111-5	204	119	79.3	17.1	1.063	16.63
CF74135-3	190	111	85.9	24.0	1.053	14.52

Table 12 - continued

Variety[1]	Yield above 1½ inches Cwt./A.	Percent of Katahdin yield	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
CF75023-1	224	131	68.9	7.3	1.060	15.99
CF75089-7	155	91	80.5	7.8	1.071	18.32
CF77154-10	142	83	83.6	6.3	1.072	18.53
F73008	184	108	71.9	7.1	1.056	15.15
NY59	145	85	91.2	26.2	1.060	15.99
Waller Duncan L.S.D. (0.05)	32				N.S.	

[1]Planted - April 30; harvested - August 11, 1983.

Seedpieces of all varieties spaced at 9 inches apart.

Fertilization: 200-100-200.

test would have been acceptable for processing.

Yields, percent defects, and percent size distribution for four russet skin varieties grown at Freehold, New Jersey are presented in Table 13. Shepody and MN9319 out-yielded the Russet Burbank and Acadia Russet. Acadia Russet had a high percentage of defects in this test which is unusual.

Long Island, New York

Yields, percent defects, percentage of U.S. #1 size tubers, and specific gravity for eight early white potato varieties grown at Riverhead, New York are presented in Table 14. Hampton (NY63) produced a very high yield of 502 cwt. per acre. Chippewa, CF7523-1, and Superior also were high yielding. Yankee Chipper produced the highest specific gravity of 1.083 followed by Yukon Gold, Superior, and CF7523-1.

In another trial of eleven main crop potato varieties conducted at Riverhead, New York, Katahdin and BR7093-23 produced the highest usable yield of tubers. None of the varieties out-yielded Katahdin. Seedling CF77154-10 had a high specific gravity of 1.083, and all of the other varieties were less than 1.079 in specific gravity.

In a variety test of 10 golden nematode resistant varieties (Table 16) conducted at Riverhead, New York, Katahdin, Islander, and Hampton produced the highest usable yields. In this test, Katahdin had the highest yield followed by Islander and Hampton. Chipbelle had the highest specific gravity at 1.100 followed by Belchip and Islander. Belchip, however, had a high of 14 percent tuber defects.

In a test of five colored skin varieties conducted at Riverhead, New York, Red Rosa, Chieftain, and Norland were the three highest yielding varieties. All of these red skinned varieties were

Table 13. Yield, usable yield, percent defects, and percentage of yield by grade size classes for 4 russeted varieties grown at Freehold, New Jersey - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield Cwt./A.	Percent defects[2]	Below 4 ounces	4 - 10 ounces	Over 10 ounces
Acadia Russet	101	86	15.9	7.6	74.7	1.8
Russet Burbank	111	107	4.1	46.4	48.6	0.9
Shepody	136	134	2.4	17.1	77.7	2.8
MN9319	118	112	5.4	14.9	78.1	1.6
Waller Duncan L.S.D. (0.05)	N.S.	N.S.				

[1]Planted - May 6; killed - August 23; harvested - October 10, 1983.
Seedpieces of all varieties spaced at 9 inches apart. Fertilization: 225-225-225.

[2]Includes misshapen and knobby tubers and tubers with second growth.

Table 14. Total yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 8 potato varieties (early white) grown at Riverhead, New York - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield above 1-7/8-4 ins. Cwt./A.	Percent of Superior yield	Percent defects	Percentage of yield 1-7/8 to 4 inches	Specific gravity	Percent total solids	Hollow heart[2]
Campbell 13	308	287	79	1.0	93	1.073	18.74	0
Chippewa	437	419	115	0.6	96	1.070	18.10	3
Hampton	502	472	129	0.5	94	1.073	18.74	2
Superior	394	365	100	1.2	93	1.077	19.58	0
Yankee Chipper	361	315	86	0.4	86	1.083	20.85	0
Yukon Gold	372	353	97	0.2	95	1.080	20.21	5
B5662-WV13	301	287	79	0.8	95	1.066	17.26	0
CF7523-1	459	415	114	1.8	90	1.075	19.16	0
Waller Duncan L.S.D. (0.05)	40	39				0.003		

[1]Planted - April 14; killed - August 15; harvested - August 17, 1983.
Seedpieces of all varieties spaced at 9.3 inches apart. Fertilization: 180-240-120.

[2]Number found per 40 tubers cut and examined for hollow heart and/or brown center.

Table 15. Total yield, usable yield, percent defects, percentage of yield between 2 and 4 inches, specific gravity, and percent total solids for 11 main crop potato varieties grown at Riverhead, New York - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield 2-4 inches Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Percentage of yield 2 - 4 inches	Percentage of yield 2½ -4 inches	Specific gravity	Percent total solids
Hampton	441	390	81	1	89	75	1.068	17.68
Katahdin	540	479	100	3	89	73	1.068	17.68
AF201-25	481	398	83	1	84	60	1.077	19.58
AF236-1	447	418	87	4	88	74	1.079	20.00
AF332-9	361	305	64	4	84	64	1.073	18.74
B6949-WV3	477	405	85	5	85	69	1.069	17.89
BR7093-23	508	456	95	2	90	73	1.071	18.32
CF72107-15	345	281	59	9	82	60	1.061	16.21
CF77154-10	295	192	40	4	60	19	1.082	20.64
F73008	573	389	81	18	68	46	1.067	17.47
NY59	505	455	95	1	90	77	1.071	18.32
Waller Duncan L.S.D. (0.05)	58	56					0.003	

[1]Planted - April 14; harvested - September 27, 1983.

Seedpieces of all varieties spaced at 9.3 inches apart. Fertilization: 180-240-120.

[2]Includes growth cracked, misshapen, and sunburned tubers.

Table 16. Total yield, usable yield, percent defects, percentage of yield from 2 to 4 inches, specific gravity, and percent total solids for 10 potato varieties (G.N. resistant) grown at Riverhead, New York - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield 2 - 4 inches Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Percentage of yield 2 - 4 inches	Percentage of yield 2½- 4 inches	Specific gravity	Percent total solids
Belchip	438	333	75	14	77	55	1.086	21.48
Chipbelle	422	362	81	3	86	60	1.100	24.44
Hampton	463	431	97	1	88	70	1.075	19.16
Hudson	431	391	88	2	91	76	1.075	19.16
Islander	485	433	97	1	89	60	1.086	21.48
Katahdin	494	446	100	3	91	72	1.072	18.53
Rosa	362	285	64	2	78	34	1.078	19.79
Wauseon	407	374	84	1	93	68	1.077	19.58
CF7358-14	406	363	81	1	90	60	1.079	20.00
NY64	425	351	79	2	83	45	1.079	20.00
Waller Duncan L.S.D. (0.05)	50	48					0.003	

[1]Planted - April 14; killed - September 1; harvested - September 22, 1983.
Seedpieces of all varieties spaced at 9.3 inches apart. Fertilization: 180-240-120.

[2]Includes some misshapen and growth cracked tubers.

Table 17. Total yield, usable yield, percent defects, percentage of yield between 2½ and 4 inches, specific gravity, and percent total solids for 5 colored potato varieties grown at Riverhead, New York - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield 2 to 4 inches Cwt./A.	Percent of Norland yield	Percent defects[2]	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Caribe	353	283	82	11	62	1.070	18.10
Chieftain*	482	428	123	1	66	1.064	16.84
Norland	404	347	100	0	56	1.057	15.38
Red Rosa*	490	401	116	1	53	1.069	17.89
Redsen	395	330	95	3	55	1.064	16.84
Waller Duncan L.S.D. (0.05)	N.S.	N.S.				0.003	

*Not NE107 varieties.

[1]Planted - April 30; harvested - September 29, 1983.
Seedpieces of all varieties spaced at 9.3 inches apart. Fertilization: 180-240-120.

[2]Includes mostly misshapen tubers.

very low in specific gravity.

A russet variety trial of eight varieties was also conducted at Riverhead, New York, as reported in Table 18. Acadia Russet produced the highest usable yield followed by MN7973, MN9319, and Russette. Only two of the eight varieties had specific gravities of 1.075 or higher.

In a russeted variety test conducted at Wainscott, Long Island, New York, Acadia Russet out-yielded BelRus and GoldRus. Specific gravity data are not available.

Yields, percent defects, and percentage of yield between 1-7/8 and 4 inches for a 10-entry potato variety trial conducted at Wainscott, New York are presented in Table 20. Seedling CF7523-1, Islander, Hampton, C7358-14, Chipbelle, and Yankee Chipper all produced higher yields than the Katahdin standard. Tubers of Chipbelle and Rosa had some hollow heart. Specific gravity data are not available for this test.

Up-State New York

Total yield, usable yield, percent defects, specific gravities, and hollow heart ratings for nine potato varieties grown at Chittenango, New York are presented in Table 21. Katahdin had the highest usable yield followed by NY59, BR7093-23, and Atlantic. Atlantic had a very high specific gravity of 1.088 and Hampton the lowest at 1.067. Islander and Atlantic had some hollow heart at this location.

Data for nine potato varieties tested at Cohocton, New York are presented in Table 22. Yields and specific gravities at Cohocton were much higher than at Chittenango. Islander produced the highest usable yield followed by BR7093-23, Rosa, and Monona. All varieties except Monona were higher than 1.080 in specific gravity.

Table 18. Total yield, usable yield, percent defects, percentage of yield from 4 to 10 ounces, specific gravity, and percent total solids for 8 russeted potato varieties grown at Riverhead, New York - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield 4 - 16 ounces Cwt./A.	Percent of BelRus yield	Percent defects[2]	Percentage of yield 4 - 10 ounces	Specific gravity	Percent total solids
Acadia Russet	580	416	221	1	54	1.073	18.74
BelRus	292	189	100	2	56	1.073	18.74
Cent. Russet	339	180	96	0	48	1.067	17.47
Nobless Russet	446	240	128	16	42	1.078	19.79
Russet Burbank	503	300	160	19	50	1.077	19.58
Russette	427	310	165	1	54	1.078	19.79
MN7973	436	321	170	1	57	1.065	17.05
MN9319	455	318	169	2	42	1.070	18.10
Waller Duncan L.S.D. (0.05)	74	54				0.002	

[1]Planted - April 30; harvested - September 29, 1983.
Seedpieces of all varieties spaced at 9.3 inches apart.
Fertilization: 180-240-120.

[2]Includes misshapen and growth cracked tubers.

Table 19. Total yield, usable yield, percent defects, and percentage of yield between 4 and 10 ounces for 3 russeted potato varieties grown at Wainscott, New York - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield 4 - 16 oz. Cwt./A.	Percent of BelRus yield	Percent defects[2]	Percentage of yield 4 - 10 ounces
Acadia Russet	376	295	159	1	68
BelRus	259	186	100	1	66
GoldRus	239	150	81	7	61
Waller Duncan L.S.D. (0.05)	52	54			

[1]Planted - May 9; harvested - October 16, 1983.

Seedpieces of all varieties spaced at 9.3 inches apart. Fertilization: 176-352-176.

[2]Includes some sunburned tubers.

Table 20. Total yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches and hollow heart ratings for 10 potato varieties grown at Wainscott, New York - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield above 1-7/8-4 inches Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Percentage of yield 1-7/8 to 4 inches	Hollow heart[3]
Chipbelle	311	275	108	4	88	9
Hampton	348	306	121	5	88	0
Hudson	313	253	100	8	81	3
Islander	388	347	137	4	90	0
Katahdin	294	254	100	4	87	1
Rosa	326	265	104	2	81	8
Wauseon	290	266	105	1	92	1
Yankee Chipper	335	275	108	5	82	1
C7358-14	320	283	111	1	89	0
CF7523-1	416	354	139	7	85	1
Waller Duncan L.S.D. (0.05)	106	67				

[1]Planted - May 9; harvested - October 16, 1983. Fertilization: 176-352-176. Seedpieces of all varieties spaced at 9.3 inches apart.

[2]Includes sunburned and misshapen tubers.

[3]Number found per 30 tubers cut and examined for hollow heart and/or brown center. Chipbelle had black discoloration.

Table 21. Total yield, percent defects, percentage of yield between 0 and 4 inches, specific gravity, percent total solids, and hollow heart ratings for 9 potato varieties grown at Chittenango, New York - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield 2-4 inches Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Percentage of yield 0 - 2 inches	Percentage of yield 2 - 4 inches	Specific gravity	Percent total solids	Hollow heart[3]
Atlantic	107	68	80	11	30	60	1.088	21.90	3
Hampton	92	56	66	9	31	60	1.067	17.47	0
Islander	90	51	61	10	35	55	1.077	19.58	9
Katahdin	139	101	100	16	13	71	1.071	18.32	0
Rosa	118	54	57	6	49	45	1.078	19.79	0
Yankee Chipper	55	11	13	7	75	19	1.080	20.21	0
BR7093-23	113	76	87	13	22	65	1.074	18.95	0
CF7523-1	101	39	44	7	55	38	1.076	19.37	0
NY59	150	88	98	25	16	59	1.075	19.16	0
Waller Duncan L.S.D. (0.05)	26	25					0.003		

[1]Planted - June 1; harvested - October 5, 1983.
Seedpieces of all varieties spaced at 9 inches apart. Fertilization - unknown.

[2]Includes mostly sunburned tubers. NY59 had high percentages of misshapen and growth cracked tubers.

[3]Number found per 40 large tubers cut and examined for hollow heart.

Table 22. Total yield, usable yield, percent defects, specific gravity, and percent total solids for 9 potato varieties grown at Cohocton, New York - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield 2-4 inches Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Specific gravity	Percent total solids
Atlantic	286	240	105	5	1.093	22.96
Belchip	290	234	103	7	1.091	22.54
Chipbelle	292	245	106	5	1.093	22.96
Islander	315	281	121	1	1.087	21.69
Katahdin	276	234	100	6	1.082	20.64
Monona	300	248	109	3	1.079	20.00
Rosa	341	269	116	5	1.087	21.69
Yankee Chipper	287	221	97	4	1.093	22.96
BR7093-23	322	276	119	5	1.086	21.48
Waller Duncan L.S.D. (0.05)	N.S.	N.S.			0.003	

[1]Planted - May 28; harvested - September 29, 1983.
Seedpieces of all varieties spaced at 9 inches apart.
Fertilization - unknown.

[2]Defects unspecified.

Yields, percent defects, and specific gravities for nine potato varieties grown at Elba, New York are presented in Table 23. Katahdin was the highest yielding variety followed by Atlantic, NY59, and Hampton. Atlantic had the highest specific gravity of 1.082. Six of the nine varieties had specific gravities of less than 1.075. All varieties grown at Elba had high percentages of defects with four of the nine grown having defect percentages higher than 20 percent.

Yields, percent defects, and specific gravities for 30 potato clones and varieties grown at Freeville, New York are presented in Table 24. The usable yield ranking for the six highest varieties was: AF303-5, Rosa, Chippewa, Hudson, B6949-WV3, and CF77154-10. About half of the 30 varieties tested were higher than 1.075 in specific gravity with Atlantic and Chipbelle showing the highest specific gravities of 1.091. Several varieties including Campbell 13, Kennebec, Onaway, Belchip, Shepody, and F73008 had high percentages of defects.

Data for a nine-entry variety test conducted at Gainesville, New York are presented in Table 25. Seedling BR7093-23 and Monona shared the first spot in the ranking for usable yield followed by Atlantic and Islander. Atlantic and Chipbelle had high specific gravities of 1.089 followed by Yankee Chipper, Belchip, and Islander. Only two of the nine varieties grown at Gainesville were below specific gravity of 1.075.

Yields, percent defects, and specific gravities for nine potato varieties grown at Savannah, New York are presented in Table 26. Seedling NY59 produced the highest usable yield followed by Atlantic, Islander, and BR7093-23. Atlantic had the highest specific gravity of 1.085, followed by NY59, Islander, and Rosa. All varieties grown had high percentages of defects which were mostly sunburned tubers.

Yields, percent defects, and specific gravities for seven

Table 23. Total yield, percent defects, percentage of yield between 0 and 4 inches, specific gravity, and percent total solids for 9 potato varieties grown at Elba, New York - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield 2-4 inches Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Percentage of yield 0 - 2 inches	Percentage of yield 2 - 4 inches	Specific gravity	Percent total solids
Atlantic	284	223	89	10	12	78	1.082	20.64
Hampton	269	206	81	13	11	76	1.066	17.26
Islander	199	126	50	12	25	63	1.076	19.37
Katahdin	349	255	100	21	5	73	1.069	17.89
Rosa	332	199	79	15	26	60	1.072	18.53
Yankee Chipper	188	84	38	17	33	50	1.078	19.79
BR7093-23	119	76	31	26	11	62	1.068	17.68
CF7523-1	204	108	43	23	25	53	1.068	17.68
NY59	330	221	86	25	9	67	1.073	18.74
Waller Duncan L.S.D. (0.05)	38	36					0.002	

[1]Planted - June 2; harvested - October 19, 1983.
Seedpieces of all varieties spaced at 9 inches apart. Fertilization - unknown.

[2]Includes sunburned, knobby, and misshapen tubers.
No hollow heart found in tubers.

Table 24. Total yield, usable yield, percent defects, percentage of yield U.S. No. 1 (Size A), specific gravity, and percent total solids for 30 potato varieties grown at Freeville, New York - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield U. S. #1 Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Percentage of yield U.S. #1 (Size A) 2½ to 4 inches	Specific gravity	Percent total solids
Atlantic	342	280	95	13	68	1.091	22.54
Belchip	384	307	107	16	71	1.083	20.85
Campbell 11	253	213	73	8	75	1.086	21.48
Campbell 13	175	125	42	20	60	1.072	18.53
Chipbelle	295	240	82	13	66	1.091	22.54
Chippewa	369	334	114	4	79	1.070	18.10
Crystal	380	285	98	17	63	1.073	18.74
Hudson	377	328	113	10	77	1.077	19.58
Islander	342	310	107	4	73	1.080	20.21
Katahdin	351	292	100	14	74	1.075	19.16
Kennebec	378	272	93	24	59	1.077	19.58
Monona	313	288	99	4	80	1.066	17.26
Norchip	333	263	90	16	62	1.081	20.43
Oceania	297	257	88	8	73	1.066	17.26
Onaway	366	261	90	23	67	1.067	17.47
Penn 71	353	289	99	15	73	1.077	19.58
Rosa	393	335	115	6	63	1.077	19.58
Shepody	327	270	93	14	74	1.080	20.21
Wauseon	287	242	84	7	66	1.069	17.89
Yankee Chipper	338	265	91	11	53	1.083	20.85
AF303-5	378	347	119	5	81	1.083	20.85
AF332-9	292	247	84	10	68	1.073	18.74
B5662-WV13	290	254	88	10	77	1.074	18.95
B6949-WV3	357	313	109	10	76	1.074	18.95

Table 24 - continued

Variety[1]	Total yield Cwt./A.	Usable yield U. S. #1 Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Percentage of yield U.S. #1 (Size A) 2½ to 4 inches	Specific gravity	Percent total solids
BR7093-23	359	297	102	13	70	1.076	19.37
C7232-4	290	269	92	3	81	1.073	18.74
CF72107-15	318	274	94	10	72	1.074	18.95
CF74135-3	292	227	78	12	58	1.063	16.63
CF77154-10	352	311	109	7	72	1.082	20.64
F73008	352	270	94	19	68	1.079	20.00
Waller Duncan L.S.D. (0.05)	49	53				0.005	

[1]Planted - May 11; killed - September 7; harvested - September 13, 1983.
Seedpieces of all varieties spaced at 10 inches apart.
Fertilization: 150-150-150.

[2]Includes sunburned, growth cracked, and irregularly shaped tubers.

Table 25. Total yield, usable yield, percent defects, specific gravity, and percent total solids for 9 potato varieties grown at Gainesville, New York - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield 2-4 inches Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Specific gravity	Percent total solids
Atlantic	335	293	103	4	1.089	22.11
Belchip	284	243	85	9	1.081	20.43
Chipbelle	300	264	92	5	1.089	22.11
Islander	334	291	102	4	1.081	20.43
Katahdin	352	287	100	8	1.072	18.53
Monona	338	309	108	3	1.070	18.10
Rosa	351	280	98	7	1.079	20.00
Yankee Chipper	351	284	100	6	1.086	21.48
BR7093-23	350	309	108	6	1.077	19.58
Waller Duncan L.S.D. (0.05)	53	N.S.			0.003	

[1]Planted - May 13; harvested - September 19, 1983.

Seedpieces of all varieties spaced at 9 inches apart. Fertilization - unknown.

[2]Includes mostly sunburned tubers. Yankee Chipper had some growth cracked tubers; and Belchip some misshapen tubers.

Table 26. Total yield, percent defects, percentage of yield between 0 and 4 inches, specific gravity, percent total solids, and hollow heart ratings for 9 potato varieties grown at Savannah, New York - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield 2-4 inches Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Percentage of yield 0 - 2 inches	Percentage of yield 2 - 4 inches	Specific gravity	Percent total solids	Hollow heart[3]
Atlantic	167	136	107	5	14	81	1.085	21.27	7
Hampton	165	114	91	12	20	68	1.071	18.32	1
Islander	183	137	106	3	22	74	1.077	19.58	7
Katahdin	170	130	100	10	14	76	1.071	18.32	0
Rosa	171	106	85	5	33	61	1.077	19.58	0
Yankee Chipper	136	74	58	8	37	54	1.074	18.95	0
BR7093-23	165	126	101	8	17	75	1.073	18.74	0
CF7523-1	177	126	98	10	19	71	1.070	18.10	0
NY59	187	155	122	6	12	82	1.079	20.00	1
Waller Duncan L.S.D. (0.05)	N.S.	34					0.003		

[1]Planted - May 11; harvested - October 12, 1983.
Seedpieces of all varieties spaced at 9 inches apart. Fertilization - unknown.

[2]Includes mostly sunburned tubers. Hampton had some growth cracks.

[3]Number found per 40 large tubers cut and examined for hollow heart.

early and medium early maturing potato varieties grown by Agway at Tully, New York are presented in Table 27. Islander ranked highest in usable yield followed by Yankee Supreme, B5662-WV13, and CF74135-3. Yankee Chipper and Yankee Supreme produced specific gravities of 1.096. All varieties in the test had specific gravities of 1.075 or higher.

Nine late maturing clones and varieties were also grown at Tully, New York and the data collected are presented in Table 28. Seedling NY59 had the highest usable yield followed by BR5991-WV16, AF303-5, and F73008. Seedling F73008 had the highest specific gravity of 1.094, but all varieties in this test were above 1.080 in specific gravity.

Yields, percent defects, and specific gravities for a four entry russeted variety test conducted at Tully, New York are presented in Table 29. All varieties out-yielded the standard variety, BelRus; and all varieties were higher than 1.085 in specific gravity. Because they were not hand sized as long tuber types, the tuber size distribution does not mean very much.

North Carolina

Due to adverse weather conditions in North Carolina, the NE107 variety trial was a complete loss in 1983 with no data generated.

Ohio

Yields, percent defects, and specific gravities for 22 potato clones and varieties grown at Wooster, Ohio are presented in Table 30. The six highest ranking varieties in terms of usable yields were: Acadia Russet, CF7688-9, BR5991-WV16, WF564-3, CF74135-3, and BR7093-23. Five of the 22 varieties in this test had specific gravities higher than 1.080, but only 11 varieties were higher than 1.075. Several varieties such as Nobless Russet, Shepody, AF238-66, BR5991-WV16, NY59, and others had high percentages of tuber defects.

Table 27. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 3¼ inches, specific gravity, and percent total solids for 7 early and medium-early potato varieties grown at Tully, New York - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Superior yield	Percent defects[2]	Percentage of yield 1-7/8 to 3¼ inches	Specific gravity	Percent total solids
Caribe	187	177	89	5.3	81.8	1.088	21.90
Islander	282	273	134	3.2	88.1	1.087	21.69
Superior	211	204	100	3.1	92.0	1.087	21.69
Yankee Chipper	193	188	91	2.5	71.0	1.096	23.59
Yankee Supreme	276	263	131	4.7	87.7	1.096	23.59
B5662-WV13	254	232	120	8.7	86.9	1.086	21.48
CF74135-3	245	228	116	6.8	73.0	1.075	19.16
Waller Duncan L.S.D. (0.05)	51	44					

[1]Planted - May 24; harvested - October 31, 1983.
Seedpieces of all varieties spaced at 9 inches.
Fertilization: 100-0-200.

[2]Includes sunburned and second growth tubers.

Table 28. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 9 late maturing potato varieties grown at Tully, New York - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Percentage of yield 1-7/8 to 3¼ inches	Specific gravity	Percent total solids
Hampton	312	291	95	6.8	87.0	1.088	21.90
Katahdin	326	300	100	8.0	89.6	1.081	20.43
Rosa	298	287	91	3.7	86.6	1.090	22.33
Shepody	333	301	102	9.7	84.8	1.088	21.90
AF303-5	347	324	106	6.7	88.7	1.090	22.33
B6949-WV3	300	272	92	9.4	85.5	1.086	21.48
BR5991-WV16	368	348	113	5.5	87.6	1.085	21.27
F73008	348	322	107	7.4	85.4	1.094	23.17
NY59	404	376	124	7.0	88.7	1.086	21.48
Waller Duncan L.S.D. (0.05)	51	37					

[1]Planted - May 24; harvested - October 31, 1983.
Seedpieces of all varieties spaced at 9 inches apart.
Fertilization: 100-0-200.

[2]Includes mostly sunburned and growth cracked tubers.

Table 29. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 3¼ inches, specific gravity, and percent total solids for 4 russeted potato varieties grown at Tully, New York - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of BelRus yield	Percent defects[2]	Percentage of yield 1-7/8 to 3¼ inches	Specific gravity	Percent total solids
Acadia Russet	265	259	157	2.1	86.3	1.088	21.90
BelRus	169	162	100	4.0	54.5	1.098	24.01
Russette	243	237	144	2.3	80.0	1.094	23.17
WF564-3	314	295	186	5.9	80.7	1.084	21.06
Waller Duncan L.S.D. (0.05)	39	41					

[1]Planted - May 24; harvested - October 31, 1983.

Seedpieces of all varieties spaced at 8 inches apart. Fertilization: 100-0-200.

[2]Includes sunburned tubers and tubers with second growth.

Table 30. Yield, usable yield, percent defects, percentage of yield above 1-7/8 inches, specific gravity, and percent total solids for 22 potato varieties grown at Wooster, Ohio - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield above 1-7/8 inches Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Percentage of yield above 1-7/8 inches	Specific gravity	Percent total solids
Acadia Russet	309	271	144	10.2	89.0	1.074	18.95
Denali	148	138	69	7.8	90.7	1.074	18.95
Hampton	183	182	86	1.0	97.5	1.075	19.16
Katahdin	214	187	100	12.0	86.9	1.063	16.63
Nobless Russet	219	149	102	30.0	67.9	1.078	19.79
Shepody	204	162	95	21.0	73.3	1.084	21.06
Simcoe	176	172	82	2.4	96.0	1.070	18.10
Superior	227	206	106	10.0	89.0	1.078	19.79
AF238-66	267	223	125	15.7	83.0	1.085	21.27
AF303-5	241	211	113	12.0	84.9	1.079	20.00
B5662-WV13	156	147	73	5.6	92.5	1.073	18.74
B6949-WV3	182	172	85	5.5	93.0	1.069	17.89
BR5991-WV16	331	258	155	18.4	80.0	1.083	20.85
BR7088-18	233	211	109	9.3	89.7	1.085	21.27
BR7093-23	265	237	124	9.8	89.4	1.074	18.95
CF74135-3	242	238	113	1.3	97.7	1.071	18.32
CF7688-9	282	267	132	5.8	93.6	1.083	20.85
CF76183-2	229	197	107	12.9	86.2	1.065	17.05
CF77154-10	205	204	96	0.4	98.3	1.083	20.85
F73008	205	179	96	12.5	83.9	1.069	17.89
NY59	253	209	118	19.7	76.3	1.074	18.95
WF564-3	265	242	124	8.3	90.4	1.075	19.16
Waller Duncan L.S.D. (0.05)	144	106					

. . . Continued

Table 30 - continued

[1]Planted - May 11; killed - September 12; harvested - September 27, 1983.

Seedpieces of all varieties spaced at 10 inches apart.

Fertilization: 120-240-240.

[2]Includes sunburned, growth cracked and tubers with second growth.
No hollow heart found in tubers from this test.

Pennsylvania

Yields, percent defects, percentage of tubers in two grade size classes, and specific gravities for 12 early maturing varieties grown in Schuylkill County, Pennsylvania are shown in Table 31. Seedling CF7523-1 ranked first in total yield followed by Caribe, Superior, Jemseg, and AF330-1. Specific gravities were not particularly high with only two varieties, AF330-1 and Caribe, higher than 1.075. Tuber sizes at this location were toward the smaller sizes, as indicated by the low percentage of tubers in the grade size of 2½ to 4 inches in diameter. Delta Gold and Yukon Gold also had high percentages of defects.

Data for a 12-entry early fresh market variety trial conducted in Somerset County, Pennsylvania are presented in Table 32. Delta Gold, Jemseg, Yukon Gold, CF74135-3, and AF330-1 ranked highest in terms of total yield. BelRus and AF330-1 had specific gravities above 1.080. Six of the 12 varieties in this test were less than 1.075 in specific gravity. Percentage of tubers in the 2½ to 4-inch grade size class suggest that all varieties in this trial produced very small tubers.

Yields, percent defects, and specific gravities for 18 fresh market varieties grown in Somerset County, Pennsylvania are shown in Table 33. Seedling BR5991-WV16, Delta Gold, NY59, B6043-WV6, F73008, and Islander were the six highest yielding varieties in total yield. Rosa and Yankee Chipper had a high specific gravity of 1.082, but only eight of the 18 varieties in test had specific gravities of 1.075 or higher. Tuber sizes in this test also showed a tendency toward the smaller sizes.

Data for 18 potato varieties grown and tested primarily for chipping are presented in Table 34. Yields were not particularly high, but AF303-5, F73008, CF7353-1, Belchip, BR7093-23, and Kennebec ranked highest in total yield. Chipbelle, Denali, Norchip,

Table 31. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity and percent total solids for 12 potato varieties grown in Schuylkill County, Pennsylvania - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Superior yield	Percent defects[2]	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Caribe	320	310	101	3.1	88.9	48.4	1.076	19.37
Delta Gold	186	152	59	18.5	67.7	31.7	1.072	18.53
Jemseg	313	284	99	9.4	86.3	69.0	1.073	18.74
Norland	338	337	107	0.2	92.7	55.0	1.063	16.63
Redsen	255	255	80	0.0	86.8	36.2	1.068	17.68
Superior	317	310	100	2.3	90.4	49.1	1.069	17.89
Yukon Gold	287	245	91	14.7	79.6	55.0	1.074	18.95
AF330-1	310	287	98	7.4	85.5	52.1	1.080	20.21
B5662-WV13	240	233	76	2.9	90.8	63.6	1.068	17.68
CF74135-3	276	261	87	5.5	83.3	36.5	1.064	16.84
CF7523-1	367	359	116	2.3	81.0	34.9	1.072	18.53
CF76183-2	253	232	80	8.2	78.1	34.9	1.070	18.10
Waller Duncan L.S.D. (0.05)	44	41					0.006	

[1]Planted - May 12; killed - August 27; harvested - September 6, 1983.

Seedpieces of all varieties spaced at 8 inches apart.

Fertilization: 120-80-200.

[2]Includes misshapen and growth cracked tubers.

Table 32. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 12 early fresh market potato varieties grown in Somerset County, Pennsylvania - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Norland yield	Percent defects[2]	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
BelRus	95	95	67	0.0	47.0	2.8	1.081	20.43
Caribe	126	126	89	0.0	64.3	10.5	1.072	18.53
Delta Gold	244	227	173	6.9	81.9	41.9	1.079	20.00
Jemseg	168	166	118	0.9	85.1	42.0	1.068	17.68
Norland	141	141	100	0.0	63.1	6.5	1.058	15.57
Redsen	101	101	72	0.0	49.3	4.5	1.064	16.84
Simcoe	105	105	74	0.0	69.3	6.1	1.077	19.58
Superior	131	128	93	2.0	67.5	10.4	1.076	19.37
Yukon Gold	164	164	116	0.0	85.2	40.1	1.079	20.00
AF330-1	147	145	104	1.6	61.9	9.9	1.085	21.27
B5662-WV13	135	133	96	1.3	79.6	16.4	1.068	17.68
CF74135-3	155	155	110	0.0	55.1	9.3	1.061	16.21
Waller Duncan L.S.D. (0.05)	39	36					0.003	

[1] Planted - May 19; killed - September 15; harvested - September 26, 1983.
Seedpieces of all varieties spaced at 8 inches apart.
Fertilization: 90-90-425.

[2] Includes misshapen, sunburned, and growth cracked tubers.

Table 33. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 18 tablestock potato varieties grown at Somerset County, Pennsylvania - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Delta Gold	244	232	116	4.9	84.6	54.4	1.075	19.16
Hampton	199	191	95	3.8	84.4	35.6	1.071	18.32
Islander	222	218	106	1.8	82.6	38.8	1.072	18.53
Katahdin	209	207	100	1.0	88.7	52.7	1.072	18.53
Redsen	128	127	61	1.0	73.3	20.1	1.065	17.05
Rosa	199	199	95	0.0	72.9	22.2	1.082	20.64
Superior	150	148	72	1.1	78.5	25.4	1.072	18.53
Yankee Chipper	142	140	68	1.3	66.7	13.1	1.082	20.64
Yukon Gold	168	163	80	2.8	85.7	39.0	1.077	19.58
AF303-5	222	217	106	2.4	86.4	45.7	1.078	19.79
B6043-WV6	228	218	109	4.5	76.9	34.1	1.071	18.32
B6949-WV3	164	164	78	0.0	90.5	47.2	1.066	17.26
BR5991-WV16	254	235	121	7.6	72.3	32.2	1.079	20.00
CF7353-1	168	159	80	5.4	81.1	36.2	1.068	17.68
F73008	225	205	108	9.1	69.4	25.0	1.076	19.37
MN7973	102	102	49	0.0	77.9	23.0	1.066	17.26
MN9319	92	91	44	0.8	66.2	18.8	1.070	18.10
NY59	234	234	112	0.2	85.4	42.8	1.078	19.79
Waller Duncan L.S.D. (0.05)	44	46					0.010	

[1]Planted - May 19; killed - September 15; harvested - September 26, 1983.

Seedpieces of all varieties spaced at 8 inches apart. Fertilization: 90-90-425.

[2]Includes mostly misshapen tubers.

Table 34. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 18 potato varieties grown at Somerset County, Pennsylvania - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Kennebec yield	Percent defects[2]	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Belchip	176	176	100	0.0	78.1	27.2	1.076	19.37
Buckskin	169	169	97	0.0	78.1	26.6	1.075	19.16
Chipbelle	151	151	86	0.0	81.8	23.8	1.084	21.06
Conestoga	91	89	52	1.8	70.0	10.3	1.071	18.32
Denali	155	155	88	0.0	82.0	33.2	1.088	21.90
Kennebec	175	173	100	1.2	87.4	39.4	1.075	19.16
Norchip	146	146	83	0.0	80.8	18.6	1.080	20.21
Penn 71	152	152	87	0.0	90.4	40.2	1.072	18.53
Rosa	167	167	95	0.0	72.7	17.4	1.078	19.79
Yankee Chipper	138	138	79	0.0	68.6	8.5	1.085	21.27
Yankee Supreme	159	154	91	3.2	75.7	15.4	1.082	20.64
AF236-1	150	146	86	2.4	79.4	24.0	1.078	19.79
AF303-5	225	221	128	1.8	85.0	50.7	1.078	19.79
BR7088-18	157	157	90	0.0	78.9	19.4	1.085	21.27
BR7093-23	175	175	100	0.0	86.8	45.2	1.074	18.95
C7232-4	89	89	51	0.0	69.4	11.1	1.080	20.21
CF7353-1	183	183	104	0.0	84.9	30.0	1.073	18.74
F73008	190	188	108	6.5	75.0	22.5	1.078	19.79
Waller Duncan L.S.D. (0.05)	37	39					0.003	

[1]Planted - May 19; killed - September 15; harvested - September 26, 1983.

Seedpieces of all varieties spaced at 8 inches apart. Fertilization: 90-90-425.

[2]Includes mostly misshapen tubers.

Yankee Chipper, Yankee Supreme, BR7088-18, and C7232-4 all had specific gravities of 1.080 or higher. Fourteen of the 18 entries in this test had specific gravities of 1.075 or higher. Very high percentages of tubers less than 2½ inches in diameter are noted in this test.

In a mostly russeted variety test conducted in Somerset County, Pennsylvania, Acadia Russet produced lower yields than WF564-3 but higher yields than Russette or Nobless Russet. All varieties in this trial produced small sized tubers and four of the six entries had specific gravities of 1.075 or higher.

Yields, percent defects, percentage of yield in two grade size classes, and specific gravities for 12 fresh market varieties grown at University Park, Pennsylvania are presented in Table 36. Delta Gold, CF7523-1, Superior, Caribe, and Yukon Gold were the highest yielding varieties. Seedling AF330-1 had the highest specific gravity of 1.080, but Delta Gold, Superior, and CF7523-1 were also above 1.075. Delta Gold had a very high reading of 23 percent defects in this test.

In another 12-entry variety trial conducted at University Park, Pennsylvania, CF74135-3 out-yielded all other varieties, as shown in Table 37. Other high yielding varieties in this test were: Caribe, Jemseg, Superior, and Norland. Only three varieties had specific gravities of 1.075 or higher. Tuber defects in this test were minimal as compared to other Pennsylvania variety tests.

Yields, percent defects, percentage of yield in two grade size classes, and specific gravities for 18 fresh market potato varieties grown at University Park, Pennsylvania are presented in Table 38. Seedling AF303-5, BR5991-WV16, F73008, Delta Gold, NY59, and Katahdin were the six highest yielding varieties in total yield. Delta Gold, however, had a high percentage of defects which reduced its usable yield considerably. Ten of the 18 varieties in this test

Table 35. Yield, usable yield, percent defects, percentage of yield between 4 and 10 ounces, specific gravity, and percent total solids for 6 potato varieties grown in Somerset County, Pennsylvania - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield Cwt./A.	Percent of Nobless Russet yield	Percent defects[2]	Percentage of yield 4 - 10 ounces	Specific gravity	Percent total solids
Acadia Russet	160	158	110	0.9	51.7	1.071	18.32
Kennebec	235	224	161	4.6	43.5	1.075	19.16
Nobless Russet	146	120	100	17.5	39.7	1.075	19.16
Russette	150	145	103	3.3	58.4	1.078	19.79
F73008	214	206	147	3.8	47.8	1.079	20.00
WF564-3	179	179	123	0.0	58.4	1.070	18.10
Waller Duncan L.S.D. (0.05)	44	38				0.006	

[1]Planted - May 19; killed - September 15; harvested - September 26. 1983.
Seedpieces of all varieties spaced at 8 inches apart.
Fertilization: 90-90-425.

[2]Includes sunburned, growth cracked, misshapen, and knobby tubers.

Table 36. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 12 potato varieties grown at University Park, Pennsylvania - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Superior yield	Percent defects[2]	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Caribe	179	173	90	3.3	78.4	28.4	1.071	18.32
Delta Gold	264	204	133	23.0	65.0	25.0	1.078	19.79
Jemseg	165	158	83	4.2	87.3	49.6	1.073	18.74
Norland	164	161	83	1.7	83.6	31.3	1.060	15.99
Redsen	160	157	81	1.8	85.8	36.9	1.063	16.63
Superior	198	182	100	8.1	83.1	45.0	1.069	17.89
Yukon Gold	179	166	90	7.0	85.1	46.7	1.077	19.58
AF330-1	157	154	79	2.2	82.0	26.2	1.080	20.21
B5662-WV13	164	162	83	2.9	89.5	51.7	1.071	18.32
CF74135-3	100	97	51	3.1	58.5	4.8	1.064	16.84
CF7523-1	235	227	119	3.6	77.3	23.7	1.076	19.37
CF76183-2	101	92	51	9.3	69.7	9.8	1.068	17.68
Waller Duncan L.S.D. (0.05)	46	44					0.005	

[1]Planted - April 28; killed - September 2; harvested - September 16, 1983.
Seedpieces of all varieties spaced at 8 inches apart.
Fertilization: 80-80-80.

[2]Includes mostly growth cracked and misshapen tubers.

Table 37. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 12 potato varieties grown at University Park, Pennsylvania - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Norland yield	Percent defects[2]	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
BelRus	140	136	80	3.0	72.8	20.2	1.080	20.21
Caribe	195	195	111	0.0	89.4	38.0	1.069	17.89
Delta Gold	140	140	80	0.0	82.9	30.6	1.069	17.89
Jemseg	177	161	101	9.0	83.0	48.4	1.069	17.89
Norland	176	169	100	3.5	85.6	31.8	1.064	16.84
Redsen	131	131	74	0.0	82.9	33.0	1.064	16.84
Simcoe	157	157	89	0.0	91.4	52.5	1.075	19.16
Superior	177	177	101	0.0	88.9	38.2	1.070	18.10
Yukon Gold	170	170	97	0.0	94.1	67.4	1.076	19.37
AF330-1	150	142	85	5.4	85.1	45.6	1.074	18.95
B5662-WV13	99	99	56	0.0	89.8	44.6	1.067	17.47
CF74135-3	221	221	126	0.0	86.2	38.3	1.060	15.99
Waller Duncan L.S.D. (0.05)	33	27					0.003	

[1]Planted - July 6; killed - October 4; harvested - November 2, 1983.
Seedpieces of all varieties spaced at 8 inches apart.
Fertilization: 80-80-80.

[2]Includes knobby, growth cracked, and misshapen tubers.

Table 38. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 18 tablestock potato varieties grown at University Park, Pennsylvania - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Delta Gold	294	262	105	10.9	78.7	43.2	1.083	20.85
Hampton	277	277	99	0.0	90.8	57.1	1.076	19.37
Islander	247	244	88	1.2	81.8	30.6	1.083	20.85
Katahdin	280	268	100	4.3	88.1	53.9	1.080	20.21
Redsen	159	158	57	0.3	82.6	32.7	1.064	16.84
Rosa	278	273	99	1.7	73.4	23.1	1.078	19.79
Superior	241	229	86	4.9	85.6	41.3	1.071	18.32
Yankee Chipper	206	206	74	0.0	72.0	18.0	1.082	20.64
Yukon Gold	229	227	82	0.8	92.8	63.6	1.078	19.79
AF303-5	329	323	117	2.6	86.2	37.7	1.089	22.11
B6043-WV6	256	254	91	0.8	82.8	32.2	1.082	20.64
B6949-WV3	242	233	86	3.6	85.1	44.7	1.073	18.74
BR5991-WV16	329	326	117	0.9	83.2	29.8	1.087	21.69
CF7353-1	261	255	93	2.4	89.9	51.6	1.080	20.21
F73008	342	324	122	5.0	83.1	35.9	1.083	20.85
MN7973	170	164	61	3.5	87.8	45.5	1.066	17.26
MN9319	134	129	48	3.8	79.7	32.4	1.070	18.10
NY59	283	283	101	0.0	88.8	49.3	1.082	20.64
Waller Duncan L.S.D. (0.05)	32	31					0.005	

[1]Planted - April 28; killed - September 2; harvested - September 23, 1983.

Seedpieces of all varieties spaced at 8 inches apart. Fertilization: 80-80-80.

[2]Includes mostly misshapen tubers.

had specific gravities of 1.080 or higher with only four varieties below 1.075.

In a chipping variety test at University Park, Pennsylvania, only seedling AF303-5 out-yielded the standard Kennebec. The highest specific gravity was Denali at 1.093 followed by another six varieties above 1.080. Fifteen of the 18 varieties in this test were higher than 1.075 in specific gravity.

Yields, percent defects, and specific gravities for a six entry baking variety test conducted at University Park, Pennsylvania are presented in Table 40. Kennebec out-yielded all varieties except WF564-3 and Acadia Russet. Russette produced the highest specific gravity of 1.080. Nobless Russet had a very high percentage of 35.8 percent defects and also a high percentage of small sized tubers.

Rhode Island

Yields, percent defects, percentage of yield in one grade size class, and specific gravities for 21 potato varieties grown at Kingston, Rhode Island are presented in Table 41. The six highest ranking varieties in total yield were: Islander, NY59, CF7523-1, Caribe, WF564-3, and BR5991-WV16. Only one variety, B6949-WV3, in this test yielded less than the Katahdin standard. Four varieties, BR5991-WV16, CF77154-10, Yankee Chipper, and Green Mountain, had specific gravities of 1.080 or higher. Only nine of the 21 varieties in this test were higher than 1.075 in specific gravity.

Vermont

Data for an 18-entry potato variety test conducted at Guildhall, Vermont are presented in Table 42. Since these varieties were not graded, the data apply to ungraded tubers. Seedling CF74135-3, WF564-3, CF7523-1, Rosa, Hampton, NY59, and Kennebec were the six highest yielding varieties. Four of the 18 varieties had specific gravities higher than 1.080 and only 11 were higher than 1.075.

Table 39. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 18 potato varieties grown at University Park, Pennsylvania - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Kennebec yield	Percent defects[2]	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-/12 to 4 inches	Specific gravity	Percent total solids
Belchip	226	215	78	4.9	85.4	44.5	1.081	20.43
Buckskin	221	214	77	3.3	81.3	32.5	1.076	19.37
Chipbelle	172	165	60	3.3	83.5	35.1	1.091	22.54
Conestoga	140	139	49	0.4	78.2	28.2	1.073	18.74
Denali	161	158	56	1.6	83.3	29.1	1.093	22.96
Kennebec	288	281	100	2.4	84.4	41.0	1.075	19.16
Norchip	239	229	83	4.1	83.4	33.3	1.080	20.21
Penn 71	221	220	77	0.6	93.0	66.3	1.071	18.32
Rosa	247	243	86	1.5	80.2	32.3	1.077	19.58
Yankee Chipper	208	208	72	0.0	80.0	18.6	1.081	20.43
Yankee Supreme	225	218	78	3.2	87.3	46.5	1.078	19.79
AF236-1	211	200	73	5.3	79.7	37.2	1.079	20.00
AF303-5	304	302	106	0.6	89.0	39.5	1.088	21.90
BR7088-18	210	209	73	0.7	88.8	40.7	1.083	20.85
BR7093-23	236	230	82	2.6	86.3	44.7	1.078	19.79
C7232-4	166	166	58	0.0	86.0	38.0	1.074	18.95
CF7353-1	253	245	88	3.2	90.2	51.2	1.078	19.79
F73008	272	261	94	4.2	83.1	36.2	1.078	19.79
Waller Duncan L.S.D. (0.05)	49	51					0.004	

[1]Planted - April 28; killed - September 2; harvested - September 23, 1983.

Seedpieces of all varieties spaced at 8 inches apart. Fertilization: 80-80-80.

[2]Includes mostly misshapen and growth cracked tubers.

Table 40. Yield, usable yield, percent defects, percentage of yield between 4 and 10 ounces, specific gravity, and percent total solids for 6 baking potato varieties grown at University Park, Pennsylvania - 1983.

Variety[1]	Total yield Cwt./A.	Usable yield Cwt./A.	Percent of Kennebec yield	Percent defects[2]	Percentage of yield 4 - 10 ounces	Specific gravity	Percent total solids
Acadia Russet	244	204	79	0.0	83.3	1.073	18.74
Kennebec	306	248	100	4.0	81.6	1.070	18.10
Nobless Russet	268	105	88	35.8	39.1	1.077	19.58
Russette	192	157	62	1.0	81.4	1.080	20.21
F73008	274	234	57	0.0	84.9	1.077	19.58
WF564-3	260	213	85	0.0	82.7	1.068	17.68
Waller Duncan L.S.D. (0.05)	31	37				0.003	

[1]Planted - April 28; killed - September 2; harvested - September 29, 1983.
Seedpieces of all varieties spaced at 8 inches apart.
Fertilization: 80-80-80.

[2]Includes mostly misshapen, growth cracked, and knobby tubers.

Table 41. Yield, usable yield, percent defects, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 21 potato varieties grown at Kingston, Rhode Island - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Katahdin yield	Percent defects[2]	Percentage of yield 1-7/8 to 4 inches	Specific gravity	Percent total solids
Caribe	342	337	188	1.4	87.6	1.071	18.32
Green Mountain	232	232	127	0.0	92.3	1.080	20.21
Islander	371	369	204	0.5	92.4	1.079	20.00
Katahdin	182	182	100	0.0	89.2	1.068	17.68
Nobless Russet	209	193	115	7.8	70.1	1.078	19.79
Norland	269	269	148	0.0	88.6	1.061	16.21
Redsen	206	206	113	0.0	82.0	1.062	16.42
Rosa	234	234	129	0.0	80.6	1.076	19.37
Shepody	246	246	135	0.0	89.2	1.077	19.58
Superior	254	250	140	0.0	91.8	1.072	18.53
Yankee Chipper	230	230	126	0.0	74.6	1.083	20.85
AF92-3	211	211	116	0.0	90.6	1.067	17.47
B5662-WV13	227	227	125	0.0	91.3	1.073	18.74
B6949-WV3	176	176	97	0.0	87.9	1.064	16.84
BR5991-WV16	287	287	158	0.0	90.8	1.085	21.27
CF75135-3	275	274	151	0.3	82.7	1.063	16.63
CF7523-1	348	348	191	0.0	90.3	1.076	19.37
CF77154-10	275	275	151	0.0	86.1	1.083	20.85
F73008	284	283	156	0.3	93.4	1.068	17.68
NY59	359	359	197	0.0	91.2	1.074	18.95
WF564-3	341	341	187	0.0	92.7	1.070	18.10
Waller Duncan L.S.D. (0.05)	67	64					

. . . Continued

Table 41 - continued

[1]Planted - May 5; killed - September 7; harvested - September 19, 1983.
Seedpieces of all varieties spaced at 10 inches apart.
Fertilization: 130-130-130.

[2]Includes sunburned, growth cracked, and misshapen tubers.

Table 42. Yield, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 18 potato varieties grown at Guildhall, Vermont - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Percent of Katahdin yield	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Acadia Russet	294	90	96.7	6.4	1.080	20.21
Hampton	362	111	97.7	7.9	1.078	19.79
Katahdin	327	100	97.5	4.3	1.074	18.95
Kennebec	354	108	97.7	7.3	1.078	19.79
Michibonne	312	95	98.9	22.5	1.076	19.37
Onaway	338	103	98.1	10.1	1.067	17.47
Rosa	387	118	95.7	1.4	1.078	19.79
Russette	311	95	97.1	2.1	1.085	21.27
Superior	277	85	97.6	3.3	1.071	18.32
B5662-WV13	238	73	98.2	7.4	1.076	19.37
B6949-WV3	321	98	98.3	10.8	1.072	18.53
C7490-2	235	72	95.8	1.2	1.071	18.32
CF7523-1	408	125	97.5	4.5	1.075	19.16
CF74135-3	402	123	96.9	4.1	1.056	15.15
CF77154-10	346	106	97.0	3.8	1.076	19.37
F73008	317	97	98.3	3.4	1.082	20.64
NY59	357	109	98.3	14.2	1.080	20.21
W564-3	402	123	98.1	10.9	1.071	18.32
Waller Duncan L.S.D. (0.05)	77				0.005	

[1]Planted - May 25; killed - September 10; harvested - September 28, 1983.

Seedpieces of all varieties spaced 9 inches apart. Fertilization: 160-240-240-80.

Apparently, very dry growing conditions existed at Guildhall, since percentages of small tuber sizes were very high.

West Virginia

Yields, percentages of yields in two market grade sizes, and specific gravities for 10 early and medium early clones and varieties grown at Reedsville, West Virginia are presented in Table 43. Yankee Chipper ranked first in total yield followed by CF7523-1, Islander, and Kennebec. In this test, Denali had a very high specific gravity of 1.101 with eight of the ten varieties above 1.080. Tuber size distribution appears to be much better than many other locations in the Northeast.

Data for a 10-entry medium-medium late maturing variety test conducted at Reedsville, West Virginia are presented in Table 44. Seedling F73008, AF303-5, NY59, BR7093-23, and Hampton were the five highest yielding varieties. Five varieties in this test had specific gravities of 1.080 or higher and only one variety was below 1.075.

Four russeted varieties were also tested at Reedsville, West Virginia and the data obtained are presented in Table 45. All varieties out-yielded the Russet Burbank standard. Russette and Russet Burbank had specific gravities of 1.087 and 1.084, respectively. Russet Burbank had a small tuber size problem, as shown in Table 45.

TUBER SIZE DISTRIBUTION AND TUBER DEFECTS

Size of potato tubers is a very important consideration for all facets of the potato industry. Most fresh market grade regulations specify maximum and minimum tuber size limits with, at last count, some 54 different grades of potatoes based on size limitations and percent tuber defects. In practice, seed growers prefer the smaller tuber sizes; french fry processors prefer the larger sizes, and potato chippers prefer the small to medium sized tubers particularly if they are packaging small packets. Fresh market packs have

Table 43. Yield, usable yield, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 10 early and medium early potato varieties grown at Reedsville, West Virginia - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Kennebec yield	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Caribe	173	150	56	82.3	69.7	1.084	21.06
Denali	203	191	71	82.0	64.1	1.101	24.65
Islander	273	271	101	86.1	66.1	1.083	20.85
Kennebec	277	269	100	86.9	68.9	1.081	20.43
Monona	225	220	82	87.8	71.8	1.072	18.53
Yankee Chipper	291	284	106	75.0	55.7	1.094	23.17
AF238-66	252	248	92	86.8	69.7	1.083	20.85
C7232-4	213	209	78	87.5	70.1	1.086	21.48
CF7523-1	283	281	104	86.8	68.7	1.078	19.79
CF7688-9	243	239	89	87.9	70.6	1.093	22.96
Waller Duncan L.S.D. (0.05)	64	58				0.003	

[1]Planted - May 11; killed - August 26; harvested - September 7, 1983.

Seedpieces of all varieties spaced at 9 inches apart.

Fertilization: 150-200-200.

Table 44. Yield, usable yield, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 10 medium-medium late potato varieties grown at Reedsville, West Virginia - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of Katahdin yield	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Hampton	285	260	103	85.0	73.6	1.075	19.16
Katahdin	278	270	100	90.9	76.8	1.075	19.16
AF236-1	255	237	92	84.6	69.8	1.083	20.85
AF303-5	330	327	119	90.9	73.7	1.088	21.90
B7019-WV1	276	251	99	86.5	73.1	1.073	18.74
BR7088-18	265	259	95	88.0	66.5	1.098	24.01
BR7093-23	304	288	109	87.1	70.8	1.077	19.58
CF74135-3	233	231	84	75.7	48.7	1.069	17.89
F73008	351	271	126	67.0	49.3	1.083	20.85
NY59	327	324	118	91.7	74.4	1.080	20.21
Waller Duncan L.S.D. (0.05)	46	44				0.007	

[1]Planted - May 11; killed - September 16; harvested - September 23, 1983.

Seedpieces of all varieties spaced at 9 inches apart.

Fertilization: 150-200-200.

Table 45. Yield, usable yield, percentage of yield between 1-7/8 and 4 inches, specific gravity, and percent total solids for 4 russeted potato varieties grown at Reedsville, West Virginia - 1983.

Variety[1]	Yield above 1½ inches Cwt./A.	Usable yield above 1½ inches Cwt./A.	Percent of R. Burbank yield	Percentage of yield 1-7/8 to 4 inches	Percentage of yield 2-1/2 to 4 inches	Specific gravity	Percent total solids
Acadia Russet	256	217	102	80.0	66.7	1.074	18.95
Russet Burbank	251	147	100	49.0	35.6	1.084	21.06
Russette	265	247	106	88.8	72.7	1.087	21.69
WF564-3	269	241	107	83.9	70.8	1.075	19.16
Waller Duncan L.S.D. (0.05)	N.S.	54				0.008	

[1]Planted - May 11; killed - September 16; harvested - September 23, 1983.
Seedpieces of all varieties spaced at 12 inches apart.
Fertilization: 100-200-200.

many federal, state, and local grades based on local culinary uses such as restaurant trade, quick food chain potato bar promotions, and perhaps frozen stuffed potato processing. Depending on the market requirements, some varieties might be very acceptable in one or more markets because of the tuber size distribution pattern; yet in other market areas those same varieties might be unacceptable. To an individual grower, however, the uniformity of tuber size is very important because this size characteristic has a high priority in the establishment of good general appearance in a fresh pack. Hence, any variety that will produce a high percentage of usable yield in a very few size classes has a good image in the industry.

In 1983, no special management practices, other than seed-piece spacing, were used in the various variety trials to influence tuber size. All cooperators in 1983 were requested to collect at least two market grade sizes of U.S. #1 (1-7/8 to 4 inches) and U.S. #1, Size A (2½ to 4 inches) for round white varieties and to hand-size the longer tuber types on a weight basis.

The response to this request was very poor with many cooperators either not sizing or grading to their local size requirements. Hand sizing by weight for the long and semi-long varieties was ignored at most locations.

Data presented in Table 46 show the complete tuber size distribution by grade size classes for 18 main crop potato varieties grown at Florenceville, New Brunswick, Canada. In spite of the very dry soil conditions, the trend was toward the larger tuber sizes, but note that there were no oversized tubers.

Tuber size distribution and tuber defects for 20 potato varieties grown at Storrs, Connecticut are presented in Table 47. All varieties produced tubers toward the smaller size classes and most varieties had high percentages of growth cracked tubers.

Table 46. Percentage of total yield by distribution into grade size classes for 18 main crop potato varieties grown at Florenceville, New Brunswick, Canada - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches
Conestoga	25.2	28.5	44.2	2.1
Crystal	18.6	27.1	51.1	3.2
Hampton	10.5	22.0	64.6	2.9
Islander	12.8	32.5	46.0	8.7
Katahdin	11.5	17.5	64.1	6.9
Kennebec	7.3	19.3	56.7	16.7
Russet Burbank	22.2	35.8	34.9	7.1
Russette	12.6	21.9	59.3	6.2
Yankee Chipper	30.4	36.9	32.7	0.0
AF236-1	13.1	19.3	56.4	11.2
AF303-5	9.9	15.9	64.6	9.6
B6949-WV3	9.2	16.9	57.4	16.5
BR5991-WV16	9.1	17.3	62.9	10.7
BR7088-18	20.4	27.9	46.5	5.2
CF7353-1	10.0	21.3	51.4	17.3
CF7358-14	13.4	17.0	60.8	8.8
MN9319	14.8	19.9	55.6	9.7
NY59	10.5	15.6	63.0	10.9

Table 47. Percentage of yield by distribution into grade size classes and percent defects for 20 potato varieties grown at Storrs, Connecticut - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	Over 4 inches	% Sun-burn	% Second growth	% Growth cracks
Acadia Russet	18.1	21.6	34.3	11.6	6.3	0.4	3.5	4.2
BelRus	19.8	26.8	35.0	7.9	1.9	0.0	4.5	4.1
Islander	20.5	26.5	32.8	5.5	0.6	0.6	4.3	9.2
Katahdin	16.3	45.0	31.1	1.7	0.0	0.3	1.2	4.4
Russet Burbank	14.1	36.7	37.4	1.1	0.0	0.0	7.7	3.0
Russette	11.6	35.4	37.4	5.2	0.0	0.0	0.2	10.2
Superior	14.1	28.0	30.8	5.8	0.0	0.5	2.1	18.7
Yankee Supreme	8.1	13.8	34.2	22.1	8.9	2.6	3.5	6.8
B5662-WV13	13.0	28.9	35.8	6.4	1.8	0.6	3.0	10.5
B6949-WV3	15.6	26.0	34.3	8.2	0.0	1.4	0.9	13.6
CF72111-5	10.0	25.8	39.5	13.0	1.7	4.4	2.8	2.8
CF7353-1	17.5	31.2	38.0	3.5	0.0	0.0	0.6	9.2
CF74135-3	9.1	31.4	31.4	3.2	2.0	0.9	1.2	20.8
CF7523-1	9.4	22.6	29.4	18.1	2.4	2.1	2.6	13.4
CF7587-7	15.6	35.9	35.0	4.7	0.0	0.6	2.1	6.1
CF77154-10	15.1	36.7	33.2	4.4	0.0	1.6	0.0	9.0
F73008	10.2	20.9	30.2	8.0	0.7	0.0	1.6	28.4
MN9319	17.6	27.0	33.3	6.4	0.0	0.0	6.5	9.2
NY59	11.5	36.7	31.1	0.3	0.0	0.2	1.9	18.3
WF564-3	15.7	38.0	31.8	5.1	0.7	3.3	0.0	5.4

Data presented in Tables 48 through 52 represent the tuber size distributions for the five maturity groups grown at Presque Isle, Maine. Worthy of note was that as the growing season advanced, there was a trend for tuber sizes to progress toward the larger tuber grade sizes. In contrast, however, note that second growth defects increased with the later maturing varieties.

Table 53 presents the tuber size distribution data for 15 varieties grown in Massachusetts. The data obviously reflect the high percentages of small tuber sizes because of very dry growing conditions. Second growth and growth cracked tubers were quite prevalent in this test. Allagash Russet and Yankee Supreme had rather high hollow heart ratings.

In a 29-entry round white variety test conducted at Bridgeton, New Jersey, tuber sizes were toward the smaller sizes; yet Hampton, Yankee Supreme, C74109-8, CF72111-5, and NY59 produced tubers toward the larger sizes, as shown in Table 54.

Tables 55 and 56 present the tuber size distribution data for the varieties grown at Cohocton and Gainesville, New York. Percentages of tubers in the 2 to 4 inch grade size were very good at both locations with a minimum of oversized tubers. Some varieties grown at Gainesville had fairly high hollow heart ratings.

At Freeville, New York, all 30 potato varieties tested had low percentages of small tubers and practically no oversized tubers, as shown in Table 57. With very few exceptions most varieties had quite high percentages of defects and high hollow heart ratings.

Tuber size distribution, percent defects, and hollow heart rating data for 11 main crop potato varieties grown at Riverhead, New York are presented in Table 58. Seedling CF77154-10 had a high percentage of tubers in the 2 to 2½ inch size class. Seedling F73008 had a very high reading of 18 percent defects. The tuber size distribution data for 10 golden nematode resistant varieties grown at

Table 48. Percentage of total yield by distribution into grade size classes and percent defects for 10 early, medium-early maturing varieties grown at Presque Isle, Maine - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2¼ inches	2¼ to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	Over 4 inches	% Sun-burn	% Growth cracks	% Second growth	Hollow heart[1]
Redsen	5.8	36.8	34.1	18.4	1.1	0.0	0.8	0.6	2.4	0
Superior	5.8	24.8	33.2	26.8	3.1	0.0	1.1	0.2	5.0	0
AF221-1	5.5	35.3	31.5	17.8	0.9	0.0	1.7	3.3	4.0	0
AF330-1	3.8	16.0	20.8	43.2	6.7	0.4	4.8	3.3	1.0	0
AS201-10	7.7	33.2	29.7	20.9	1.6	0.0	2.7	1.4	2.8	0
B5662-WV13	5.5	25.8	33.9	30.2	0.8	0.0	0.5	0.2	3.1	0
CF74135-3	10.7	35.7	23.3	20.3	1.6	0.0	3.3	2.0	3.1	1
CF7523-1	5.7	33.5	33.0	22.1	1.7	0.0	1.6	0.7	1.7	0
CF76183-2	18.6	55.6	0.0	0.0	8.9	0.0	5.5	3.1	8.3	0
CF77154-10	3.7	20.8	31.0	34.0	3.3	0.0	3.6	0.6	2.8	0

[1]Number found per 60 large tubers cut and examined for hollow heart.

Table 49. Percentage of total yield by distribution into grade size classes and percent defects for 8 medium maturing varieties grown at Presque Isle, Maine - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2¼ inches	2¼ to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	Over 4 inches	% Sun-burn	% Growth cracks	% Second growth	Hollow heart[1]
Kennebec	2.4	10.6	19.5	49.2	8.5	0.5	5.8	1.8	1.7	2
Rhine Red	4.9	16.8	21.0	42.5	8.2	1.1	0.2	3.8	1.5	1
AF307-5	2.1	19.3	32.8	37.2	2.7	0.2	3.0	0.2	2.5	0
AF332-9	2.5	10.1	21.3	45.0	12.7	1.3	1.4	4.8	0.9	0
CF72111-5	4.7	24.7	29.7	28.4	4.3	0.0	5.3	1.6	1.3	1
CF7688-9	2.8	12.6	21.1	47.5	9.3	0.8	3.0	2.3	0.5	6
MN7973	2.7	13.4	27.2	36.7	12.3	0.9	3.2	0.3	3.3	1
MN8224	5.5	26.3	26.0	32.8	5.0	0.0	0.8	2.1	1.5	1

[1]Number found per 60 large tubers cut and examined for hollow heart.

Table 50. Percentage of total yield by distribution into grade size classes and percent defects for 15 medium late maturing varieties grown at Presque Isle, Maine - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2¼ inches	2¼ to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	Over 4 inches	% Sun-burn	% Growth cracks	% Other defects[1]	Hollow heart[2]
Crystal	4.9	15.2	27.6	36.7	8.1	0.0	2.5	0.4	4.6	1
Kennebec	2.7	7.7	18.6	46.8	13.1	1.2	4.3	1.7	3.9	2
Michibonne	2.1	8.0	13.9	50.9	12.0	1.7	2.8	1.3	7.3	0
Michimac	3.9	15.0	25.4	45.3	7.3	0.0	1.8	0.5	0.8	0
AF201-25	5.3	18.1	32.4	33.1	4.2	0.0	1.4	0.3	5.2	1
AF236-1	2.6	13.5	21.4	42.3	7.4	0.0	7.6	0.4	4.8	2
AF303-5	3.8	14.5	27.4	42.1	5.5	0.0	1.1	0.0	5.6	0
B6928-WV14	5.3	17.8	23.9	38.9	6.9	0.0	0.4	0.3	6.5	1
B6949-WV3	2.8	9.5	16.5	45.2	12.6	2.1	1.8	0.1	9.4	0
B7019-WV1	2.8	15.4	28.7	40.8	3.2	0.0	3.8	1.1	4.2	2
BR7088-18	2.9	13.7	22.0	43.2	5.6	0.0	2.2	1.0	9.4	6
C74109-8	4.0	19.3	23.0	33.1	3.9	0.8	2.6	7.5	5.8	0
CF72107-15	2.9	13.4	24.3	42.4	7.4	0.0	1.1	1.6	6.9	0
CF7353-1	1.9	9.2	17.7	45.2	7.6	0.0	0.7	0.0	17.7	0
CF7587-7	6.4	27.3	32.6	20.4	0.9	0.0	0.5	0.4	11.5	0

[1]Mostly second growth.

[2]Number found per 60 large tubers cut and examined for hollow heart.

Table 51. Percentage of total yield by distribution into grade size classes and percent defects for 8 late maturing varieties grown at Presque Isle, Maine - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2¼ inches	2¼ to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	Over 4 inches	% Sun-burn	% Growth cracks	% Other defects[1]	Hollow heart[2]
Hampton	2.1	10.1	18.1	47.4	14.2	0.8	3.1	1.6	2.6	2
Katahdin	2.3	8.6	15.8	48.8	13.8	0.9	1.8	0.0	8.0	0
Red Pontiac	1.8	8.0	13.3	42.2	15.1	0.2	0.4	4.4	14.6	2
Rosa	3.8	15.6	21.7	31.5	7.6	0.5	1.6	0.0	17.7	3
BR7093-23	3.3	16.5	24.3	40.9	3.2	0.0	2.3	0.5	9.0	1
F73008	2.0	11.7	27.1	39.4	3.2	0.0	1.5	4.7	10.4	0
NY59	3.5	11.2	17.8	47.0	9.2	0.2	1.2	0.2	9.7	2
NY64	2.9	16.0	23.5	30.4	5.7	0.7	3.3	2.8	14.7	1

[1]Mostly second growth and knobby tubers.

[2]Number found per 60 large tubers cut and examined for hollow heart.

Table 52. Percentage of total yield by distribution into grade size classes and percent defects for 4 russeted potato varieties grown at Presque Isle, Maine - 1983.

Variety	Below 4 ounces	4 - 10 ounces	10-16 ounces	Over 16 ounces	% Sun-burn	% Growth cracks	% Second growth	Hollow heart[1]
Alaska Russet	30.7	58.3	5.4	0.4	0.8	0.0	4.4	1
Nobless Russet	23.6	51.0	5.2	0.7	0.2	0.3	19.0	2
Russet Burbank	27.9	50.1	6.1	0.3	0.1	0.9	14.6	0
MN9319	15.7	60.3	15.9	1.6	0.4	0.0	6.1	0

[1]Number found per 60 large tubers cut and examined for hollow heart.

Table 53. Percentage of total yield by distribution into grade size classes, percent defects, and hollow heart ratings for 15 potato varieties grown at South Deerfield, Massachusetts - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	% Second growth	% Growth cracks	Hollow heart[1]
Acadia Russet	21.5	63.0	11.9	0.0	3.6	0.0	0
Allagash Russet	19.2	55.2	13.8	0.0	6.4	5.4	5
Atlantic	16.8	47.1	29.6	1.1	5.4	0.0	2
BelRus	25.6	60.4	4.5	0.0	8.7	0.8	0
Caribe	12.1	47.0	33.8	0.0	7.1	0.0	0
Centennial Russet	23.5	60.7	10.4	0.0	2.6	2.8	0
Hudson	44.6	36.2	14.6	0.0	1.2	3.4	0
Katahdin	13.4	45.9	37.5	1.6	0.8	0.8	0
Russette	23.2	52.4	19.0	0.0	0.7	4.7	2
Superior	16.7	50.6	27.0	0.9	4.0	0.8	0
Yankee Supreme	10.4	57.2	26.2	1.6	3.0	1.6	8
BR7088-18	16.8	53.4	24.0	0.0	4.4	1.4	1
BR7093-23	21.7	53.5	22.3	0.0	0.5	2.0	1
CF7523-1	31.5	47.0	15.8	0.0	4.0	1.7	0
MN9319	16.5	45.7	22.2	4.6	6.6	4.4	0

[1] Number found per 40 large tubers cut and examined for hollow heart.

Table 54. Percentage of total yield by distribution into grade size classes for 29 potato varieties grown at Bridgeton, New Jersey - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 3¼ inches	Over 3¼ inches
Caribe	18.1	71.6	9.4	0.9
Conestoga	14.7	57.1	28.0	0.2
Crystal	20.1	63.1	16.8	0.0
Denali	13.8	62.7	21.2	2.3
Hampton	9.0	56.9	33.2	0.9
Islander	20.8	61.8	16.1	1.3
Katahdin	14.9	53.6	28.0	3.5
Oceania	25.5	65.6	8.9	0.0
Redsen	25.2	66.6	8.2	0.0
Rosa	21.7	64.4	13.5	0.4
Superior	9.3	65.3	24.8	0.8
Yankee Chipper	24.7	64.9	10.4	0.0
Yankee Supreme	6.2	50.8	39.3	3.7
Yukon Gold	10.3	60.9	23.0	5.8
AF236-1	15.1	62.6	22.3	0.0
AF238-66	14.7	64.7	20.4	0.2
AF330-1	13.6	62.9	22.3	1.2
B5662-WV13	9.1	67.6	21.8	1.5
B6928-WV14	34.0	58.5	7.5	0.0
B6949-WV3	20.7	54.6	24.2	0.5
B7019-WV1	13.5	69.4	17.1	0.0
C74109-8	8.2	61.0	27.7	3.1
CF72111-5	20.8	62.1	15.6	1.5
CF74135-3	14.1	61.9	22.3	1.7
CF75023-1	31.1	61.6	7.3	0.0
CF75089-7	19.5	72.7	7.8	0.0
CF77154-10	16.5	77.2	6.3	0.0
F73008	28.2	64.7	6.5	0.6
NY59	8.7	65.0	24.6	1.7

Table 55. Percentage of yield by distribution into grade size classes and hollow heart ratings for 9 potato varieties grown at Cohocton, New York - 1983.

Variety	Percent Size Distribution			Hollow heart[1]
	0 - 2 inches	2 - 4 inches	Over 4 inches	
Atlantic	9	84	2	3
Belchip	6	81	6	1
Chipbelle	11	84	0	0
Islander	10	89	0	0
Katahdin	8	85	1	0
Monona	13	82	2	2
Rosa	16	79	0	0
Yankee Chipper	20	77	0	0
BR7093-23	9	86	0	0

[1]Number found per 40 large tubers cut and examined for hollow heart.

Table 56. Percentage of yield by distribution into grade size classes and hollow heart ratings for 9 potato varieties grown at Gainesville, New York - 1983.

Variety	Percent Size Distribution			Hollow heart[1]
	0 - 2 inches	2 - 4 inches	Over 4 inches	
Atlantic	6	88	2	8
Belchip	6	86	0	11
Chipbelle	7	88	0	6
Islander	9	87	0	16
Katahdin	5	82	6	5
Monona	3	91	3	9
Rosa	13	80	0	7
Yankee Chipper	13	81	0	1
BR7093-23	5	89	0	1

[1]Number found per 40 large tubers cut and examined for hollow heart.

Table 57. Percentage of total yield by distribution into grade size classes, percent defects, and hollow heart ratings for 30 potato varieties grown at Freeville, New York - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	Over 4 inches	Percent defects[1]	Hollow heart[2]
Atlantic	5	14	40	28	0	13	16
Belchip	2	8	37	34	2	16	20
Campbell 11	3	10	46	29	4	8	14
Campbell 13	6	14	32	28	0	20	4
Chipbelle	6	15	48	18	0	13	27
Chippewa	5	12	50	29	1	4	1
Crystal	9	11	43	20	0	17	8
Hudson	3	10	46	31	0	10	0
Islander	6	17	54	19	0	4	22
Katahdin	3	10	47	27	0	14	11
Kennebec	4	13	38	21	0	24	2
Monona	4	11	53	27	0	4	4
Norchip	6	16	46	16	0	16	1
Oceania	4	14	46	27	1	8	1
Onaway	3	5	34	33	2	23	0
Penn 71	3	9	47	26	0	15	10
Rosa	9	23	45	18	0	6	17
Shepody	3	9	47	27	0	14	24
Wauseon	8	19	44	22	0	7	2
Yankee Chipper	10	26	42	11	0	11	0
AF303-5	4	11	48	33	0	5	7
AF332-9	6	16	52	16	0	10	0
B5662-WV13	3	11	44	33	0	10	6
B6949-WV3	3	11	49	27	0	10	0
BR7093-23	4	13	47	23	1	13	13

Table 57 - continued

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	Over 4 inches	Percent defects[1]	Hollow heart[2]
C7232-4	4	12	48	33	0	3	5
CF72107-15	3	13	45	27	0	10	8
CF74135-3	8	20	45	13	2	12	0
CF77154-10	5	16	55	17	0	7	1
F73008	5	9	41	27	0	19	1

[1]Includes sunburned, growth cracked, and irregularly shaped tubers.

[2]Number found per 40 large tubers cut and examined for hollow heart.

Table 58. Percentage of total yield by distribution into grade size classes, percent defects, and hollow heart ratings for 11 main crop potato varieties grown at Riverhead, New York - 1983.

Variety	2 - 2½ inches	2½ - 3½ inches	3½ - 4 inches	Over 4 inches	Percent defects[1]	Hollow heart[2]
Hampton	14	59	16	3	1	1
Katahdin	16	65	8	1	3	0
AF201-25	24	48	12	0	1	1
AF236-1	14	53	21	2	4	1
AF332-9	20	62	2	0	4	0
B6949-WV3	16	59	10	2	5	0
BR7093-23	17	63	10	1	2	1
CF72107-15	22	54	6	1	9	1
CF77154-10	41	19	0	0	4	3
F73008	22	43	3	0	18	0
NY59	13	64	13	1	1	1

[1] Includes growth cracked, misshapen, and sunburned tubers.

[2] Number found per 40 tubers cut and examined for hollow heart and/or brown center.

Riverhead, New York indicate a tendency to be toward the small sizes, as shown in Table 59. Belchip in this test had a high percentage of defects and Chipbelle had a high hollow heart rating.

In a colored variety test at Riverhead, New York, only Caribe sized up well, as shown in Table 60. Caribe, however, had a higher percentage of defects than other varieties in this test.

In a russet variety test conducted at Riverhead, New York, most varieties had high percentages of tubers under 4 ounces in weight, as shown in Table 61. Nobless Russet and Russet Burbank had high percentages of defects which were mostly misshapen tubers.

Tuber size distribution and tuber defects data for seven early and medium early potato varieties grown at Tully, New York are presented in Table 62. Yankee Chipper, Caribe, and CF74135-3 had high percentages of small tubers. All varieties in this trial also had large percentages of sunburned tubers.

Size distribution and percent defects data for the nine late maturing varieties grown at Tully, New York are shown in Table 63. In contrast to the early-medium early size distribution patterns in Table 62, the late maturing variety size distribution was skewed toward the larger tuber sizes. Sunburned tubers were also very prevalent among the late maturing varieties grown at Tully, New York.

Size distribution and defects data for four russeted varieties grown at Tully, New York are presented in Table 64. The tuber size distribution cannot be interpreted since the varieties were sized on the basis of mean diameter rather than by weight which determines the grade sizes for russeted varieties. From the data presented, however, it would appear that the general tuber sizes were toward the small sizes.

Data presented in Table 65 represent the tuber size distribution and percent tuber defects for 22 potato varieties grown at

Table 59. Percentage of total yield by distribution into grade size classes, percent defects, and hollow heart ratings for 10 golden nematode resistant varieties grown at Riverhead, New York - 1983.

Variety	2 - 2½ inches	2½ - 3½ inches	3½ - 4 inches	Over 4 inches	Percent defects[1]	Hollow heart[2]
Belchip	22	53	2	1	14	4
Chipbelle	26	58	2	0	3	19
Hampton	23	66	4	1	1	2
Hudson	15	68	8	3	2	2
Islander	29	60	0	0	1	7
Katahdin	19	70	2	1	3	0
Rosa	44	34	0	0	2	3
Wauseon	27	63	3	0	1	0
CF7358-14	30	59	1	1	1	2
NY64	38	45	0	0	2	0

[1]Includes some misshapen and growth cracked tubers.

[2]Number found per 40 tubers cut and examined for hollow heart and/or brown center.

Table 60. Percentage of total yield by distribution into grade size classes, percent defects, and hollow heart ratings for 5 colored potato varieties grown at Riverhead, New York - 1983.

Variety	2 to 2½ inches	2½ to 3½ inches	3½ to 4 inches	Over 4 inches	Percent defects	Hollow heart[1]
Caribe	18	45	17	1	11	0
Chieftain	23	62	4	0	1	0
Norland	30	54	2	1	0	0
Red Rosa	30	51	2	0	1	3
Redsen	28	46	9	0	3	1

[1]Number found per 40 tubers cut and examined for hollow heart and/or brown center.

Table 61. Percentage of total yield by distribution into grade size classes, percent defects, and hollow heart ratings for 8 russeted potato varieties grown at Riverhead, New York - 1983.

Variety	0 - 4 ounces	4 - 10 ounces	10 -16 ounces	Over 16 ounces	Percent defects[1]	Hollow heart[2]
Acadia Russet	24	54	17	4	1	0
BelRus	32	56	9	1	2	1
Centennial Russet	47	48	5	0	0	1
Nobless Russet	30	42	12	0	16	1
Russet Burbank	21	50	10	0	19	5
Russette	21	54	19	5	1	6
MN7973	25	57	16	1	1	0
MN9319	19	42	28	9	2	0

[1]Includes misshapen and growth cracked tubers.

[2]Number found per 40 tubers cut and examined for hollow heart and/or brown center.

Table 62. Percentage of total yield by distribution into grade size classes and percent defects for 7 early and medium early potato varieties grown at Tully, New York - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 3¼ inches	Over 3¼ inches	% Sun-burn	% Second growth	% Growth cracks
Caribe	12.9	81.8	0.0	5.3	0.0	0.0
Islander	8.7	85.8	2.3	3.2	0.0	0.0
Superior	4.9	90.5	1.5	3.1	0.0	0.0
Yankee Chipper	26.4	71.1	0.0	2.2	0.3	0.0
Yankee Supreme	7.6	83.7	4.0	4.3	0.4	0.0
B5662-WV13	4.4	83.2	3.7	8.0	0.7	0.0
CF74135-3	20.1	72.0	1.0	5.3	0.9	0.7

Table 63. Percentage of total yield by distribution into grade size classes and percent defects for 9 late maturing potato varieties grown at Tully, New York - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 3¼ inches	Over 3¼ inches	% Sun-burn	% Second growth	% Growth cracks
Hampton	6.2	82.2	4.8	6.8	0.0	0.0
Katahdin	2.4	77.7	11.9	8.0	0.0	0.0
Rosa	9.6	80.6	6.0	3.8	0.0	0.0
Shepody	5.5	78.4	6.4	6.8	2.9	0.0
AF303-5	4.7	86.1	2.6	6.4	0.2	0.0
B6949-WV3	5.1	70.2	15.3	9.4	0.0	0.0
BR5991-WV16	6.8	85.5	2.1	3.2	2.4	0.0
F73008	7.3	83.4	2.0	1.3	5.4	0.6
NY59	4.4	76.9	11.7	6.2	0.8	0.0

Table 64. Percentage of total yield by distribution into grade size classes and percent defects for 4 russeted potato varieties grown at Tully, New York - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 3¼ inches	Over 3¼ inches	% Sun-burn	% Second growth
Acadia Russet	11.5	80.4	6.0	2.1	0.0
BelRus	41.5	54.5	0.0	1.6	2.4
Russette	17.7	79.0	1.0	2.3	0.0
WF564-3	13.4	71.2	9.5	5.9	0.0

Wooster, Ohio. Hampton, F73008, NY59, and Nobless Russet appeared to have small tuber size problems and Katahdin had a high percentage of sunburned tubers. Nobless Russet, Shepody, and several other varieties had very high percentages of tubers showing second growth.

Tuber size distribution data for 12 early fresh market potato varieties grown in Somerset County, Pennsylvania are shown in Table 66. All of the varieties except Delta Gold produced high percentages of small tubers because of very dry soil conditions. Delta Gold, however, appears to have some drought resistance but is prone to growth defects which were mostly misshapen tubers and growth cracks.

Size distribution data for 18 chipping varieties grown in Somerset County, Pennsylvania are shown in Table 67. All varieties except Penn 71 and Kennebec had quite high percentages of tubers in the 1½ to 1-7/8-inch size class. Tuber defects at this test location were minimal except for F73008 and Yankee Supreme.

In another 18-entry variety test grown for fresh market use in Somerset County, Pennsylvania, the tuber size distribution was also toward the smaller sizes, as shown in Table 68. A few varieties such as Delta Gold, Islander, Yukon Gold, AF303-5, and B6949-WV3 produced small percentages of tubers in the 3¼ to 4-inch size class. Delta Gold, Hampton, B6043-WV6, BR5991-WV16, CF7353-1, and F73008 produced quite high percentages of unusable or cull tubers.

Tuber size data for six russet varieties grown in Somerset County, Pennsylvania are presented in Table 69. The russeted varieties in this test did not produce excessive percentages of small tubers except the Nobless Russet which had 39.5 percent of its tubers below 4 ounces. This same variety also had a very high percentage of defective tubers which were mostly misshapen and knobby.

Tuber size distribution data for 12 potato varieties grown in Schuylkill County, Pennsylvania are presented in Table 70.

Table 65. Percentage of yield by distribution into grade size classes and percent defects for 22 potato varieties grown at Wooster, Ohio - 1983.

Variety	Below 1-7/8 inches	1-7/8 to 2¼ inches	Over 2¼ inches	% Sun-burn	% Second growth	% Growth cracks
Acadia Russet	0.9	7.1	81.8	3.0	7.2	0.0
Denali	1.5	3.1	87.7	0.6	7.1	0.0
Hampton	1.5	10.5	87.0	1.0	1.0	0.0
Katahdin	1.2	4.6	82.3	10.0	1.9	0.0
Nobless Russet	2.1	11.0	56.9	1.1	25.6	3.3
Shepody	1.7	9.0	68.3	4.9	16.1	0.0
Simcoe	1.6	4.5	91.4	1.0	1.5	0.0
Superior	0.6	4.3	85.1	4.3	5.7	0.0
AF238-66	1.4	8.2	74.8	3.7	11.9	0.0
AF303-5	3.1	6.2	78.7	0.4	11.6	0.0
B5662-WV13	1.9	5.6	86.8	3.4	2.3	0.0
B6949-WV3	1.5	8.5	84.5	0.9	4.6	0.0
BR5991-WV16	1.6	7.4	72.7	1.0	17.3	0.0
BR7088-18	1.0	5.8	83.9	2.4	12.2	0.0
BR7093-23	0.8	5.2	84.2	9.8	0.0	0.0
CF74135-3	1.0	6.0	91.7	0.4	0.9	0.0
CF7688-9	0.6	3.8	89.8	0.6	5.2	0.0
CF76183-2	0.9	5.3	80.8	6.0	7.0	0.0
CF77154-10	1.3	7.3	91.0	0.4	0.0	0.0
F73008	3.5	12.7	71.2	0.0	12.6	0.0
NY59	4.0	13.6	62.7	0.0	19.7	0.0
WF564-3	1.2	4.0	86.4	3.6	4.8	0.0

Table 66. Percentage of total yield by distribution into grade size classes and percent defects for 12 early fresh market potato varieties grown in Somerset County, Pennsylvania - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	Percent defects[1]
BelRus	53.0	44.2	2.8	0.0	0.0
Caribe	35.7	53.8	10.5	0.0	0.0
Delta Gold	11.3	40.0	36.0	5.8	6.9
Jemseg	14.0	43.1	39.3	2.7	0.9
Norland	36.9	56.6	6.5	0.0	0.0
Redsen	50.7	47.8	1.5	0.0	0.0
Simcoe	30.7	63.3	6.0	0.0	0.0
Superior	30.5	57.1	10.4	0.0	2.0
Yukon Gold	14.8	45.1	40.1	0.0	0.0
AF330-1	36.5	52.0	9.9	0.0	1.6
B5662-WV13	19.1	63.2	16.4	0.0	1.3
CF74135-3	44.9	45.8	9.3	0.0	0.0

[1]Includes sunburned, misshapen, and growth cracked tubers.

Table 67. Percentage of total yield by distribution into grade size classes and percent defects for 18 potato varieties grown at Somerset County, Pennsylvania - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	% Sun-burn	% Culls
Belchip	21.9	50.9	27.2	0.0	0.0	0.0
Buckskin	21.8	51.6	26.6	0.0	0.0	0.0
Chipbelle	18.3	57.9	23.8	0.0	0.0	0.0
Conestoga	28.6	59.3	10.3	0.0	0.0	1.8
Denali	18.1	48.7	33.2	0.0	0.0	0.0
Kennebec	11.4	48.0	37.3	2.1	0.0	1.2
Norchip	19.2	62.2	18.6	0.0	0.0	0.0
Penn 71	9.6	50.2	38.2	2.0	0.0	0.0
Rosa	27.4	55.2	16.5	0.9	0.0	0.0
Yankee Chipper	31.4	60.1	8.5	0.0	0.0	0.0
Yankee Supreme	21.1	60.3	15.4	0.0	0.0	3.2
AF236-1	18.3	55.3	24.0	0.0	2.4	0.0
AF303-5	13.2	34.3	50.7	0.0	0.0	1.8
BR7088-18	21.1	59.5	19.4	0.0	0.0	0.0
BR7093-23	13.2	41.6	45.2	0.0	0.0	0.0
C7232-4	30.5	58.4	11.1	0.0	0.0	0.0
CF7353-1	15.2	54.8	29.0	1.0	0.0	0.0
F73008	18.5	52.5	22.5	0.0	0.0	6.5

Table 68. Percentage of total yield by distribution into grade size classes and percent defects for 18 potato varieties grown for tablestock at Somerset County, Pennsylvania - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	% Sun-burn	% Culls
Delta Gold	10.5	30.2	43.4	11.1	0.8	4.0
Hampton	11.8	48.8	35.6	0.0	0.0	3.8
Islander	15.6	43.8	36.0	2.8	0.7	1.1
Katahdin	10.3	36.0	50.8	1.9	1.0	0.0
Redsen	25.7	53.2	20.1	0.0	1.0	0.0
Rosa	27.1	50.7	22.2	0.0	0.0	0.0
Superior	20.4	53.1	25.4	0.0	1.1	0.0
Yankee Chipper	32.0	53.6	13.1	0.0	1.3	0.0
Yukon Gold	11.5	46.7	36.1	2.9	1.3	1.5
AF303-5	11.1	40.8	43.1	2.6	0.0	2.4
B6043-WV6	18.6	42.8	34.1	0.0	0.0	4.5
B6949-WV3	9.5	43.3	43.0	4.2	0.0	0.0
BR5991-WV16	20.0	40.2	32.2	0.0	0.0	7.6
CF7353-1	13.5	44.9	36.2	0.0	0.0	5.4
F73008	21.5	44.3	23.9	1.2	1.9	7.2
MN7973	22.1	54.9	23.0	0.0	0.0	0.0
MN9319	32.9	47.5	18.8	0.0	0.8	0.0
NY59	14.4	42.7	40.3	2.4	0.0	0.2

Table 69. Percentage of total yield by distribution into grade size classes and percent defects for 6 varieties grown in Somerset County, Pennsylvania - 1983.

Variety	Below 4 ounces	4 to 10 ounces	10 to 16 ounces	Over 16 ounces	% Sun-burn	% Other defects[1]
Acadia Russet	18.6	51.7	25.7	3.1	0.0	0.9
Kennebec	10.2	43.5	38.1	3.6	4.0	0.6
Nobless Russet	39.5	39.7	3.3	0.0	0.0	17.5
Russette	23.2	58.4	15.1	0.0	0.0	3.3
F73008	20.5	47.8	26.9	1.0	0.0	3.8
WF564-3	14.9	58.4	24.9	1.8	0.0	0.0

[1]Includes growth cracked, misshapen, and knobby tubers.

Delta Gold, Redsen, CF7523-1, and CF76183-2 produced tubers toward the smaller classes; and Jemseg, Yukon Gold, and B5662-WV13 produced higher percentages of the larger tuber sizes. It would also appear that Delta Gold, Jemseg, and Yukon Gold had high percentages of tubers with growth cracks and/or misshapen tubers.

Data shown in Tables 71 and 72 indicate the percentage size distribution for two variety trials conducted at University Park, Pennsylvania. In both tests there was a trend for most varieties to produce high percentages of the smaller sized tubers. Yukon Gold, Simcoe, and Jemseg were the only varieties that produced many tubers larger than 3¼ inches in diameter. In one test, as shown in Table 72, the percentage of culls was high for most varieties; but in the other test, as shown in Table 71, the percentage of total defects was high for a relatively few varieties.

Tuber size distribution data for 18 chipping varieties grown at University Park, Pennsylvania are shown in Table 73. All varieties except Penn 71 and CF7353-1 had high percentages of small tubers and only three varieties, Kennebec, AF236-1, and C7232-4, had any tubers over 3¼ inches in size. In this test, many varieties had sunburned tubers and tubers which were growth cracked or misshapen.

Tuber size distribution and tuber defects data for 18 table-stock potato varieties grown at University Park, Pennsylvania are presented in Table 74. A few varieties such as Hampton, Katahdin, Superior, Yukon Gold, CF7353-1, and MN7973 sized up quite well. Katahdin, Yukon Gold, CF7353-1, MN7973, and NY59 actually produced small percentages of tubers over 3¼ inches in diameter. Katahdin was the only variety with a notable percentage of sunburned tubers; and Delta Gold had a high percentage of cull tubers.

A russeted potato variety trial was also conducted at University Park, Pennsylvania. Nobless Russet was the only variety with unsatisfactory tuber sizes, as shown in Table 75. This same variety

Table 70. Percentage of total yield by size distribution into grade size classes and percent defects for 12 potato varieties grown in Schuylkill County, Pennsylvania - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	Over 4 inches	Percent defects[1]
Caribe	8.0	40.5	48.4	0.0	0.0	3.1
Delta Gold	13.8	36.0	31.7	0.0	0.0	18.5
Jemseg	3.1	17.2	37.2	31.8	1.3	9.4
Norland	7.1	37.7	49.7	5.3	0.0	0.2
Redsen	13.1	50.7	36.2	0.0	0.0	0.0
Superior	7.4	41.2	44.2	4.9	0.0	2.3
Yukon Gold	5.7	24.6	36.3	18.7	0.0	14.7
AF330-1	7.1	33.4	44.0	8.1	0.0	7.4
B5662-WV13	6.2	27.2	46.5	17.2	0.0	2.9
CF74135-3	11.2	46.8	31.5	5.0	0.0	5.5
CF7523-1	16.7	46.2	32.0	2.8	0.0	2.3
CF76183-2	13.7	43.3	34.0	0.8	0.0	8.2

[1]Includes misshapen and growth cracked tubers.

Table 71. Percentage of total yield by distribution into grade size classes and percent defects for 12 potato varieties grown at University Park, Pennsylvania - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	% Total defects[1]
BelRus	24.2	52.6	20.2	0.0	3.0
Caribe	10.6	51.3	38.1	0.0	0.0
Delta Gold	17.1	52.3	30.6	0.0	0.0
Jemseg	8.0	34.6	48.4	0.0	9.0
Norland	10.8	53.9	31.8	0.0	3.5
Redsen	17.0	50.0	33.0	0.0	0.0
Simcoe	8.5	39.0	49.5	3.0	0.0
Superior	11.0	50.8	38.2	0.0	0.0
Yukon Gold	5.9	26.7	58.9	8.5	0.0
AF330-1	9.5	39.5	45.6	0.0	5.4
B5662-WV13	10.3	45.1	44.6	0.0	0.0
CF74135-3	13.9	47.8	38.3	0.0	0.0

[1]Includes knobby, growth cracked, and misshapen tubers.

Table 72. Percentage of total yield by distribution into grade size classes and percent defects for 12 potato varieties grown at University Park, Pennsylvania - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	% Sun-burn	% Culls[1]
Caribe	18.4	49.9	28.4	0.0	0.0	3.3
Delta Gold	12.0	40.1	25.0	0.0	3.4	19.5
Jemseg	8.5	37.7	46.0	3.6	0.0	4.2
Norland	14.7	52.3	31.3	0.0	0.0	1.7
Redsen	12.4	48.9	35.3	1.6	0.0	1.8
Superior	8.8	38.1	43.8	1.2	0.0	8.1
Yukon Gold	8.0	38.4	46.7	0.0	1.9	5.0
AF330-1	15.8	55.8	26.2	0.0	0.0	2.2
B5662-WV13	7.7	37.8	49.5	2.1	0.0	2.9
CF74135-3	38.3	53.8	4.8	0.0	0.0	3.1
CF7523-1	19.2	53.6	23.7	0.0	0.5	3.0
CF76183-2	21.0	59.9	9.8	0.0	0.0	9.3

[1]Includes mostly growth cracked and misshapen tubers.

Table 73. Percentage of total yield by distribution into grade size classes and percent defects for 18 potato varieties grown at University Park, Pennsylvania - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	% Sun-burn	% Culls[1]
Belchip	9.8	40.9	44.5	0.0	0.0	4.8
Buckskin	15.3	48.9	32.5	0.0	2.1	1.2
Chipbelle	13.2	48.4	35.1	0.0	1.6	1.7
Conestoga	21.5	49.9	28.2	0.0	0.0	0.4
Denali	15.1	54.2	29.1	0.0	0.7	0.9
Kennebec	13.2	43.3	38.9	2.2	2.4	0.0
Norchip	12.5	50.1	33.3	0.0	1.9	2.2
Penn 71	6.3	26.8	66.3	0.0	0.6	0.0
Rosa	18.3	47.9	32.3	0.0	0.6	0.9
Yankee Chipper	20.0	61.4	18.6	0.0	0.0	0.0
Yankee Supreme	9.6	40.8	46.5	0.0	1.7	1.4
AF236-1	15.0	42.6	35.4	1.7	3.2	2.1
AF303-5	10.4	49.6	39.4	0.0	0.0	0.6
BR7088-18	10.5	48.1	40.7	0.0	0.3	0.4
BR7093-23	11.1	41.6	44.7	0.0	2.6	0.0
C7232-4	14.1	48.0	31.3	6.6	0.0	0.0
CF7353-1	6.7	39.0	51.2	0.0	0.7	2.4
F73008	12.8	46.8	36.2	0.0	2.8	1.4

[1]Includes mostly growth cracked and misshapen tubers.

Table 74. Percentage of total yield by distribution into grade size classes and percent defects for 18 potato varieties grown for tablestock at University Park, Pennsylvania - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	% Sun-burn	% Culls[1]
Delta Gold	10.4	35.6	43.2	0.0	0.9	9.9
Hampton	9.2	33.7	57.1	0.0	0.0	0.0
Islander	17.0	51.3	30.6	0.0	0.0	1.1
Katahdin	7.6	34.2	51.0	2.9	4.3	0.0
Redsen	17.1	49.9	32.7	0.0	0.0	0.3
Rosa	24.9	50.3	23.1	0.0	0.9	0.8
Superior	9.5	44.3	41.3	0.0	0.0	4.9
Yankee Chipper	28.0	54.0	18.0	0.0	0.0	0.0
Yukon Gold	6.4	29.2	57.7	5.9	0.0	0.8
AF303-5	11.3	48.4	37.7	0.0	0.0	2.6
B6043-WV6	16.4	50.6	32.2	0.0	0.0	0.8
B6949-WV3	11.3	40.4	44.7	0.0	1.0	2.6
BR5991-WV16	15.9	53.4	29.8	0.0	0.0	0.9
CF7353-1	7.8	38.2	48.0	3.6	0.0	2.4
F73008	11.9	47.2	35.9	0.0	0.0	5.0
MN7973	8.7	42.3	42.6	2.9	1.3	2.2
MN9319	16.5	47.3	32.4	0.0	0.0	3.8
NY59	11.2	39.5	45.8	3.5	0.0	0.0

[1]Includes mostly misshapen tubers.

Table 75. Percentage of total yield by distribution into grade size classes and percent defects for 6 baking potato varieties grown at University Park, Pennsylvania - 1983.

Variety	Below 4 ounces	4 to 10 ounces	10 to 16 ounces	Over 16 ounces	% Sun-burn	% Culls[1]
Acadia Russet	16.7	45.0	38.3	0.0	0.0	0.0
Kennebec	11.1	44.9	36.7	3.3	4.0	0.0
Nobless Russet	25.2	30.0	9.0	0.0	0.0	35.8
Russette	17.6	54.6	26.8	0.0	0.0	1.0
F73008	15.1	50.9	34.0	0.0	0.0	0.0
WF564-3	10.4	35.1	47.6	6.9	0.0	0.0

[1]Includes mostly knobby and misshapen tubers.

had 35.8 percent knobby and misshapen tubers.

Tuber size distribution and tuber defects data for 21 potato varieties grown at Kingston, Rhode Island are presented in Table 76. Only eight varieties had high percentages of 1½ to 1-7/8 inch tubers and as many varieties actually had some oversized tubers. Nobless Russet was the only variety that appeared to have any notable percentage of defects.

Most varieties grown at Guildhall, Vermont appeared to have a near normal tuber size distribution, as shown in Table 77. Tubers were not graded at Guildhall for tuber defects.

Tuber size distribution and tuber defects data for 10 early and medium early varieties grown at Reedsville, West Virginia are presented in Table 78. Islander, Yankee Chipper, and CF7523-1 had a tendency for tubers to be toward the smaller grade sizes. Caribe produced a high 8.4 percent of tubers in the oversize or over 4-inch size class. None of the varieties had serious problems with tuber defects.

In a russet variety test at Reedsville, Nobless Russet did not size up well, as shown in Table 78. Nobless Russet also had a very high percentage of knobby and second growth tubers.

For a 10-entry medium and medium late maturing variety test grown at Reedsville, West Virginia, CF74135-3 and F73008 had high percentages of smaller tubers, as shown in Table 79. Seedling AF236-1, B7019-WV1, and F73008 had quite a lot of sunburned tubers as well as tubers with second growth.

STORAGE CHARACTERISTICS

Potatoes grown in many of the Northeastern United States and Canada are stored and marketed for many months after harvest. It is, therefore, very important to determine how new clones and varieties

Table 76. Percentage of total yield by distribution into grade size classes and percent defects for 21 potato varieties grown at Kingston, Rhode Island - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 4 inches	Over 4 inches	% Sun-burn	% Second growth	% Growth cracks
Caribe	6.4	87.6	3.3	1.3	1.4	0.0
Green Mountain	5.6	92.3	2.1	0.0	0.0	0.0
Islander	6.3	92.4	0.8	0.5	0.0	0.0
Katahdin	6.9	89.2	3.9	0.0	0.0	0.0
Nobless Russet	19.8	70.1	0.0	2.3	5.1	2.7
Norland	11.4	88.6	0.0	0.0	0.0	0.0
Redsen	17.2	82.0	0.8	0.0	0.0	0.0
Rosa	19.4	80.6	0.0	0.0	0.0	0.0
Shepody	6.5	89.2	3.9	0.4	0.0	0.0
Superior	7.7	91.8	0.5	0.0	0.0	0.0
Yankee Chipper	24.6	74.6	0.8	0.0	0.0	0.0
AF92-3	7.2	90.6	2.2	0.0	0.0	0.0
B5662-WV13	5.4	91.3	3.3	0.0	0.0	0.0
B6949-WV3	12.1	87.9	0.0	0.0	0.0	0.0
BR5991-WV16	7.6	90.8	1.6	0.0	0.0	0.0
CF74135-3	11.5	82.7	5.5	0.0	0.0	0.3
CF7523-1	9.7	90.3	0.0	0.0	0.0	0.0
CF77154-10	13.5	86.1	0.4	0.0	0.0	0.0
F73008	5.7	93.5	0.5	0.0	0.0	0.3
NY59	7.5	91.2	1.3	0.0	0.0	0.0
WF564-3	4.8	92.7	2.5	0.0	0.0	0.0

Table 77. Percentage of yield by size distribution into grade size classes for 18 potato varieties grown at Guildhall, Vermont - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2¼ inches	2¼ to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches
Acadia Russet	3.3	26.8	63.4	6.5	0.0
Hampton	2.3	23.8	66.1	5.0	2.8
Katahdin	2.5	26.1	67.1	4.3	0.0
Kennebec	2.3	26.5	63.9	7.3	0.0
Michibonne	1.1	21.1	55.3	19.2	3.3
Onaway	1.9	20.2	67.7	9.5	0.7
Rosa	4.3	34.8	59.5	1.4	0.0
Russette	2.9	32.9	62.1	2.1	0.0
Superior	2.4	31.3	63.1	3.2	0.0
B5662-WV13	1.7	31.3	59.6	6.6	0.8
B6949-WV3	1.7	26.2	61.2	10.1	0.8
C7490-2	4.2	43.9	50.7	1.2	0.0
CF7523-1	2.5	27.7	65.3	4.5	0.0
CF74135-3	3.1	26.9	65.9	3.8	0.3
CF77154-10	3.0	29.5	63.6	3.9	0.0
F73008	1.7	24.2	71.2	2.4	0.5
NY59	1.7	22.6	61.5	12.3	1.9
W564-3	1.9	22.7	64.5	8.9	2.0

Table 78. Percentage of yield by distribution into grade size classes and percent defects for 10 early-medium early and 4 russeted potato varieties grown at Reedsville, West Virginia - 1983.

Variety	1½ to 1-7/8 inches	1-7/8 to 2½ inches	2½ to 4 inches	Over 4 inches	% Sun-burn	% Second growth	% Growth cracks
Caribe	6.3	12.5	69.7	8.4	0.0	1.2	1.9
Denali	11.9	17.9	64.1	1.0	0.0	0.2	4.9
Islander	13.2	20.0	66.1	0.0	0.4	0.2	0.1
Kennebec	10.3	18.0	68.9	0.4	0.8	1.2	0.4
Monona	9.5	16.0	71.8	1.5	0.4	0.0	0.8
Yankee Chipper	22.8	19.4	55.7	0.0	2.1	0.0	0.0
AF238-66	11.6	17.1	69.7	0.0	0.9	0.0	0.7
C7232-4	10.6	17.4	70.1	0.5	1.0	0.0	0.4
CF7523-1	12.2	18.2	68.7	0.0	0.9	0.0	0.0
CF7688-9	10.6	17.3	70.6	0.0	0.3	0.7	0.5

Russet Varieties							
Acadia Russet	5.0	13.2	66.7	5.6	2.2	6.9	0.4
Russet Burbank	7.7	13.4	35.6	0.0	0.0	43.3	0.0
Russette	4.5	16.1	72.7	3.2	0.6	0.3	2.6
WF564-3	5.6	13.2	70.8	6.1	3.3	0.0	1.0

Table 79. Percentage of total yield by distribution into grade size classes and percent defects for 10 medium-medium late potato varieties grown at Reedsville, West Virginia - 1983.

Variety	1-7/8 to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches	Over 4 inches	% Sun-burn	% Second growth	% Growth cracks
Hampton	6.0	11.4	73.6	7.1	1.0	0.0	0.9
Katahdin	6.4	14.1	76.8	1.7	0.9	0.0	0.1
AF236-1	7.6	14.7	69.8	3.5	4.4	0.0	0.0
AF303-5	8.0	17.2	73.7	0.6	0.0	0.5	0.0
B7019-WV1	4.5	13.4	73.1	2.2	4.2	0.7	1.9
BR7088-18	9.6	21.5	66.6	0.0	0.0	1.4	0.9
BR7093-23	8.6	16.3	70.8	2.0	1.4	0.3	0.6
CF74135-3	23.4	26.8	48.9	0.0	0.6	0.2	0.1
F73008	10.7	17.7	49.3	0.0	3.2	19.1	0.0
NY59	7.5	17.4	74.4	0.3	0.0	0.4	0.0

keep when stored at both high and low temperatures as part of the data package needed before naming and release of a clone for commercial production. The storage studies reported in this bulletin also provide a good indication as to which varieties should be treated for sprout inhibition, treated for storage rots, or should be marketed very early in the season.

Desirable storage characteristics vary among production areas but for most varieties grown in the late season production areas, the storage characteristics are: minimal weight loss, minimum losses from sprouting and tuber rots, a long rest period, and freedom from defects that might be enhanced by storage conditions.

Data presented in Tables 80 through 84 indicate the percentage of weight loss for early, medium early, medium, medium late, late, and russeted varieties grown at Presque Isle, Maine in 1982, and stored at three different temperatures for about six months. As a guide for interpretation of the weight loss data, total weight losses of 5, 10, and 14 percent at 38F., 45F., and 50F., respectively, may be considered borderline to excessive weight loss. Varieties or clones which exceed these guidelines may be difficult to store for extended time periods even when treated with sprout inhibitors. Tubers that shrink and become soft and discolor in storage are unattractive when marketed for fresh pack, sliver, or fracture excessively if used for french fries or chips, and very often have internal discoloration problems. Note that quite a number of varieties grown in the 1982 variety trial at Presque Isle were within acceptable limits for storage losses. A few varieties, however, such as AF222-1 and CF74135-3, were not good storage clones; but B5662-WV13, Kennebec, AF332-9, MN7973, AF236-1, all the late maturing varieties, and Russet Burbank had acceptable low storage weight losses. Note, however, that Superior, Caribe, B8833-6, and B8943-4 had quite a record for tuber rots.

In mid-March 1983, when the sprout and weight losses were

Table 80. Effect of storage temperatures upon sprout loss, total weight loss, and tuber rot for 11 early and medium early maturing potato varieties during storage from September 22, 1982 to March 14, 1983 at 38, 45, and 50F.

Variety	38F.[1]		45F.[1]		50F.[1]		Tuber Rot[2]
	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	Total of 3 Temperatures
Simcoe	0.1	5.4	2.2	8.2	3.2	9.6	1
Superior	0.1	5.1	2.2	7.6	3.6	9.8	26
Trent	0.1	4.1	5.1	10.7	6.9	13.6	3
Yukon Gold	0.1	3.8	1.3	4.8	1.5	6.4	1
AF222-1	0.6	5.6	7.9	16.1	9.8	19.0	5
AF330-1	0.1	5.5	3.4	5.8	2.4	9.8	4
AS201-10	0.1	4.2	4.6	10.0	4.8	10.6	2
B5662-WV13	0.1	6.0	1.0	6.9	1.2	7.0	0
CF7523-1	0.1	5.9	5.0	12.3	5.4	12.9	0
CF74135-3	0.2	5.6	10.4	20.1	9.2	17.9	2
CF76183-2	0.1	4.4	4.4	10.2	6.2	12.9	3

[1]Relative humidity maintained at 85%.

[2]Number found in 90 tubers examined for tuber rot.

Table 81. Effect of storage temperatures upon sprout loss, total weight loss, and tuber rot for 13 medium maturing potato varieties during storage from September 27, 1982 to March 14, 1983 at 38, 45, and 50F.

Variety	38F.[1]		45F.[1]		50F.[1]		Tuber Rot[2]
	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	Total of 3 Temperatures
Caribe	0.1	4.8	1.5	6.8	2.3	8.8	13
Conestoga	0.2	5.6	5.6	11.8	6.2	12.8	0
Kennebec	0.1	6.0	1.1	7.6	1.6	8.0	2
Rideau	0.2	5.8	3.5	10.2	3.7	11.0	0
AF238-66	0.1	5.7	3.2	10.2	4.9	13.0	3
AF307-5	0.1	4.8	5.0	11.4	5.9	13.3	3
AF332-9	0.1	5.0	1.6	7.2	1.6	8.4	1
C7232-4	0.1	6.1	4.0	12.1	5.2	13.0	0
C7490-2	0.1	6.4	5.2	13.4	4.0	12.0	7
CF7688-9	0.2	6.3	4.7	12.8	5.0	13.1	0
MN7973	0.1	5.4	1.8	7.1	2.2	7.8	0
MN8224	0.2	6.2	4.0	11.4	3.4	11.6	4
MN8757	0.1	5.7	2.0	8.1	3.5	9.8	4

[1]Relative humidity maintained at 85%.

[2]Number found in 90 tubers examined for tuber rot.

Table 82. Effect of storage temperatures upon sprout loss, total weight loss, and tuber rot for 15 medium late maturing potato varieties during storage from September 23, 1982 to March 14, 1983 at 38, 45, and 50F.

Variety	38F.[1]		45F.[1]		50F.[1]		Tuber Rot[2]
	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	Total of 3 Temperatures
Kennebec	0.1	7.0	0.9	7.4	1.1	7.0	0
Michibonne	0.2	7.1	1.5	8.5	1.6	7.6	1
Michimac	0.2	8.1	2.0	9.6	2.0	8.4	2
AF201-25	0.6	6.2	4.6	11.3	4.3	10.3	2
AF221-21	0.2	7.0	2.4	10.8	2.4	9.4	3
AF236-1	0.1	6.8	1.3	8.9	0.8	7.9	0
AF303-5	0.3	6.6	3.1	9.6	4.0	11.9	2
B6043-WV6	0.1	8.0	0.2	9.6	0.2	8.0	0
B6928-WV14	0.2	6.8	2.4	9.4	3.2	10.4	1
B6949-WV3	0.1	6.8	1.2	8.4	0.9	6.8	0
B7019-WV1	0.1	6.6	0.5	6.6	0.8	6.5	2
BR7088-18	0.2	7.8	2.0	10.2	2.8	11.0	0
C74109-8	0.2	8.8	3.2	11.9	3.5	11.0	3
CF7353-1	0.1	7.5	2.0	10.0	2.0	9.2	0
CF72107-25	0.1	6.9	2.8	9.6	4.3	12.3	0

[1]Relative humidity maintained at 85%.

[2]Number found in 90 tubers examined for tuber rot.

Table 83. Effect of storage temperatures upon sprout loss, total weight loss, and tuber rot for 5 late maturing potato varieties during storage from October 21, 1982 to March 14, 1983 at 38, 45, and 50F.

Variety	38F.[1]		45F.[1]		50F.[1]		Tuber Rot[2]
	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	Total of 3 Temperatures
Katahdin	0.1	7.0	1.0	5.6	2.0	7.2	3
Rosa	0.1	9.6	0.8	7.4	1.3	8.4	2
B8833-6	0.1	7.2	1.3	7.9	1.7	8.2	16
BR7093-23	0.1	6.6	1.0	8.0	0.9	7.0	1
F73008	0.1	5.1	0.6	5.6	0.9	6.2	6

[1]Relative humidity maintained at 85%.

[2]Number found in 90 tubers examined for tuber rot.

Table 84. Effect of storage temperatures upon sprout loss, total weight loss, and tuber rot for 5 russet and long type potato varieties during storage from October 21, 1982 to March 14, 1983 at 38, 45, and 50F.

Variety	38F.[1]		45F.[1]		50F.[1]		Tuber Rot[2] Total of 3 Temperatures
	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	
GoldRus	0.0	7.9	3.9	11.2	3.2	12.5	1
Russet Burbank	0.2	4.2	0.2	4.4	0.8	5.1	0
B8934-4	0.1	7.0	0.4	6.4	1.3	8.0	5
B8943-4	0.1	5.0	0.4	6.2	0.7	6.6	12
MN9319	0.1	6.2	3.8	10.3	6.2	13.4	4

[1]Relative humidity maintained at 85%.

[2]Number found in 90 tubers examined for tuber rot.

determined, the samples were also closely examined for storage disorders. The tuber samples from 38F. storage were weighed and moved to 45F. storage where they remained until June 1, 1983. Results of this extended storage period are presented in Tables 85 through 89. A total weight loss of up to 20 percent for this long storage period is a reasonable guideline for most varieties. Note that there are a number of clones and varieties that could, with the aid of a sprout inhibitor, extend the Maine marketing season to 12 months or until new early crop potatoes could be available.

In part, storage ability of any potato variety and its value for seed in southern United States and South American markets is related to the length of the rest period genetically inherent in a variety and how rapidly sprout development takes place after dormancy has been broken. In 1982, ten tuber samples of each variety grown at Presque Isle were selected at random and stored at 45F. and 85% relative humidity shortly after harvest. Weekly observations of sprout lengths were made for each variety starting as the first visual signs of sprouting occurred. Measurement of apical sprout lengths was continued until sprout lengths reached one-half inch in length. Later, these measurements were converted into days from harvest to the sprout lengths indicated in Table 90.

Rest periods for the varieties grown at Presque Isle in 1982 and observed during the 1982-83 storage season varied from a low of 52 days for MN9319 to a high of 119 days for Simcoe. In general, rest periods were quite short (90 days) for the varieties grown in 1982 at Presque Isle. Even though the rest period duration for any individual variety varies between years, if the varieties were ranked from high to low in rest period, the ranking would be about the same. The varieties with the longest sprout development period were: B6043-WV6, Russet Burbank, B7019-WV1, Simcoe, and F73008.

Very few storage disorders were observed during the 1982-83 storage season and they will be reported in the varietal observations section of this bulletin.

Table 85. Effect of storage temperatures upon sprout loss and total weight loss for 11 early and medium early maturing potato varieties during storage at 38F. from September 22, 1982 to March 14, 1983, and then at 45F. until June 1, 1983.

Variety	38F.[1]		45F.[1]		38 and 45F.[1]	
	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss
Simcoe	0.1	5.4	4.9	7.2	5.0	12.6
Superior	0.1	5.1	6.7	10.6	6.8	15.7
Trent	0.1	4.1	8.4	10.6	8.5	14.7
Yukon Gold	0.1	3.8	4.0	5.8	4.1	9.6
AF222-1	0.6	5.6	5.8	9.1	6.4	14.7
AF330-1	0.1	5.5	6.8	9.7	6.9	15.2
AS201-10	0.1	4.2	6.0	8.8	6.1	13.0
B5662-WV13	0.1	6.0	1.5	3.4	1.6	9.4
CF7523-1	0.1	5.9	8.5	12.9	8.6	18.8
CF74135-3	0.2	5.6	12.3	17.8	12.5	23.4
CF76183-2	0.1	4.4	9.0	12.4	9.1	16.8

[1]Relative humidity maintained at 85%.

Table 86. Effect of storage temperatures upon sprout loss and total weight loss for 13 medium maturing potato varieties during storage at 38F. from September 22, 1982 to March 14, 1983, and then at 45F. until June 1, 1983.

Variety	38F.[1]		45F.[1]		38 and 45F.[1]	
	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss
Caribe	0.1	4.8	5.4	10.8	5.5	15.6
Conestoga	0.2	5.6	14.4	18.2	14.6	23.8
Kennebec	0.1	6.0	8.2	12.3	8.3	18.3
Rideau	0.2	5.8	3.0	5.8	3.2	11.6
AF238-66	0.1	5.7	8.4	11.8	8.5	17.5
AF307-5	0.1	4.8	8.3	12.4	8.4	17.2
AF332-9	0.1	5.0	6.7	9.8	6.8	14.8
C7232-4	0.1	6.1	8.4	12.7	8.5	18.8
C7490-2	0.1	6.4	5.1	8.0	5.2	14.4
CF7688-9	0.2	6.3	13.0	15.7	13.2	22.0
MN7973	0.1	5.4	7.6	10.2	7.7	15.6
MN8224	0.2	6.2	6.8	11.4	7.0	17.6
MN8757	0.1	5.7	5.8	8.4	5.9	14.1

[1]Relative humidity maintained at 85%.

Table 87. Effect of storage temperatures upon sprout loss and total weight loss for 15 medium late maturing potato varieties during storage at 38F. from September 23, 1982 to March 14, 1983, and then at 45F. until June 1, 1983.

Variety	38F.[1]		45F.[1]		38 and 45F.[1]	
	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss
Kennebec	0.1	7.0	5.9	8.9	6.0	15.9
Michibonne	0.2	7.1	3.4	5.8	3.6	12.9
Michimac	0.2	8.1	2.3	3.8	2.5	11.9
AF201-25	0.6	6.2	5.4	7.6	6.0	13.8
AF221-21	0.2	7.0	5.0	7.3	5.2	14.3
AF236-1	0.1	6.8	2.4	5.4	2.5	12.2
AF303-5	0.3	6.6	5.2	7.3	5.5	13.9
B6043-WV6	0.1	8.0	4.7	7.4	4.8	15.4
B6928-WV14	0.2	6.8	6.4	9.0	6.6	15.8
B6949-WV3	0.1	6.8	4.1	6.0	4.2	12.8
B7019-WV1	0.1	6.6	4.9	7.4	5.0	14.0
BR7088-18	0.2	7.8	8.0	11.0	8.2	18.8
C74109-8	0.2	8.8	4.0	7.1	4.2	15.9
CF7353-1	0.1	7.5	6.4	9.0	6.5	16.5
CF72107-25	0.1	6.9	5.9	8.8	6.0	15.7

[1]Relative humidity maintained at 85%.

Table 88. Effect of storage temperatures upon sprout loss and total weight loss for 5 late maturing potato varieties during storage at 38F. from October 21, 1982 to March 14, 1983, and then at 45F. until June 1, 1983.

Variety	38F.[1]		45F.[1]		38 and 45F.[1]	
	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss
Katahdin	0.1	7.0	1.3	2.8	1.4	9.8
Rosa	0.1	9.6	1.6	4.8	1.7	14.4
B8833-6	0.1	7.2	3.3	6.1	3.4	13.3
BR7093-23	0.1	6.6	5.9	10.8	6.0	17.4
F73008	0.1	5.1	3.8	6.7	3.9	11.8

[1]Relative humidity maintained at 85%.

Table 89. Effect of storage temperatures upon sprout loss and total weight loss for 5 russet and long type potato varieties during storage at 38F. from October 21, 1982 to March 14, 1983, and then at 45F. until June 1, 1983.

Variety	38F.[1]		45F.[1]		38 and 45F.[1]	
	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss	% Sprout Loss	% Total Wt. Loss
GoldRus	0.0	7.9	9.0	12.8	9.0	20.7
Russet Burbank	0.2	4.2	6.2	8.4	6.4	12.6
B8934-4	0.1	7.0	3.4	5.4	3.5	12.4
B8943-4	0.1	5.0	4.2	6.8	4.3	11.8
MN9319	0.1	6.2	4.8	8.2	4.9	14.4

[1]Relative humidity maintained at 85%.

Table 90. Sprouting characteristics of potato varieties stored at Presque Isle, Maine - 1983.

Variety[1]	Days to Indicated Sprout Length				
	First pip	1/8 inch	1/4 inch	3/8 inch	1/2 inch
Early and Medium Early Varieties. Harvested - September 5, 1982.					
Simcoe	119	133	154	161	168
Superior	91	98	105	112	119
Trent	84	98	112	119	133
Yukon Gold	98	119	133	154	161
AF222-1	84	98	112	126	133
AF330-1	84	119	133	140	154
AS201-10	91	98	119	126	133
B5662-WV13	84	112	119	126	133
CF7523-1	84	105	112	119	126
CF74135-3	77	84	91	105	112
CF76183-2	84	98	119	126	133
Medium Maturing Varieties. Harvested - September 16, 1982.					
Caribe	87	94	108	115	122
Conestoga	73	94	108	115	122
Kennebec	87	108	122	129	136
Rideau	87	94	108	115	122
AF238-66	73	80	115	122	136
AF307-5	80	101	108	115	122
AF332-9	94	108	122	136	150
C7232-4	73	87	94	101	108
C7490-2	73	87	94	101	108
CF7688-9	73	87	94	101	108
MN7973	73	108	115	122	129
MN8224	66	73	80	87	94
MN8757	94	108	122	129	150
Medium Late Maturing Varieties. Harvested - September 22, 1982.					
Kennebec	102	109	116	123	137
Michibonne	88	109	123	137	144
Michimac	74	95	102	109	116
AF201-25	60	67	74	81	88
AF221-21	67	81	95	102	109
AF236-1	81	102	116	130	137
AF303-5	60	67	74	81	88
B6043-WV6	109	137	158	179	200
B6928-WV14	74	88	102	116	130
B6949-WV3	88	116	123	137	151
B7019-WV1	109	130	144	165	179
BR7088-18	67	81	95	102	109
C74109-8	67	95	102	109	116
CF7353-1	81	109	116	123	130
CF72107-25	67	74	88	109	116

. . . Continued

Table 90 - continued

Variety[1]	Days to Indicated Sprout Length				
	First pip	1/8 inch	1/4 inch	3/8 inch	1/2 inch
Late Maturing Varieties. Harvested - September 27, 1982.					
Katahdin	76	97	111	125	132
Rosa	69	90	97	132	146
B8833-6	76	97	104	111	118
BR7093-23	90	104	118	139	153
F73008	83	104	132	153	167
Russet and Long Type Varieties. Harvested - October 7, 1982.					
Russet Burbank	115	143	171	185	192
B8934-4	80	101	115	129	136
B8943-4	87	115	136	150	164
B8972-1	66	80	87	94	101
MN9319	52	66	73	80	87

[1]Planted - May 15, 1982. Stored at 45F., 85% R.H.

PREPARATION LOSSES

Peeling, trimming, or paring losses vary by variety when hand peeled, steam lye and steam peeled, or by use of abrasive peeling methods. The latter method is probably the most severe method so was used for these tests. In 1982, duplicate 10-pound random samples of tubers from each variety grown at Presque Isle were saved and stored at 38F. and 85% relative humidity until December 13, 1982. The samples were warmed for 48 hours at 65F. before being abrasively peeled on December 15, 1982.

Abrasive peeling and total preparation losses for 49 potato varieties grown in 1982 at Presque Isle, Maine are presented in Table 91. Deep-eyed varieties, pigmented skinned varieties, and varieties with irregular surfaces, indented stem ends, misshapen tubers, and varieties with irregular shapes usually resulted in the highest preparation losses. Of the 49 varieties peeled and trimmed, only 19 varieties had total preparation losses of less than 15% which is the guideline that processors use indicating acceptability. When the peeling and trimming losses exceed 20%, processors have indicated that this is too high for continued use.

AFTER COOKING DARKENING

After cooking darkening causes some varieties in some years to be undesirable for boiling or processing into by-products such as mashed, diced, patties, flakes, granules, and other products that are not fried. Varieties and clones vary between years, among locations, and where grown under various cultural conditions in the tendency to show after cooking darkening.

Data presented in Table 92 represent the after cooking darkening indices for 49 potato varieties grown at Presque Isle, Maine in 1982, and stored for approximately five months at 38F. and 85% relative humidity. Even though there are no accepted standards for after cooking darkening indices, an apparent acceptable rating used by

Table 91. Preparation losses for 49 potato varieties grown at Presque Isle, Maine - 1982.

Variety[1]	% Abrasive peeling[2] losses	% Paring losses	Total % Preparation losses
Caribe	12.9	6.3	19.2
Conestoga	12.6	5.4	18.0
GoldRus	9.8	5.6	15.4
Katahdin	7.4	5.7	13.1
Kennebec (med.)	9.6	6.8	16.4
Kennebec (med. late)	8.1	6.2	14.3
Michibonne	10.8	4.4	15.2
Michimac	6.8	6.9	13.7
Rideau	12.8	4.7	17.5
Rosa	5.6	7.0	12.6
Russet Burbank	13.4	8.8	22.2
Simcoe	12.6	6.2	18.8
Superior	9.8	7.8	17.6
Trent	15.8	4.2	20.0
Yukon Gold	9.2	4.0	13.2
AF201-25	20.2	3.4	23.6
AF221-1	11.4	5.6	17.0
AF222-1	26.6	4.8	31.4
AF236-1	12.3	3.6	15.9
AF238-66	7.0	5.8	12.8
AF303-5	5.6	6.4	12.0
AF307-5	10.6	5.6	16.2
AF330-1	17.8	4.6	22.4
AF332-9	19.5	4.2	23.7
AS201-10	16.2	3.8	20.0
B5662-WV13	5.4	7.0	12.4
B6043-WV6	5.0	4.4	9.4
B6928-WV14	5.0	6.4	11.4
B6949-WV3	10.2	4.6	14.8

Table 91 - continued

Variety[1]	% Abrasive peeling[2] losses	% Paring losses	Total % Preparation losses
B7019-WV1	8.6	4.2	12.8
B8833-6	18.8	3.2	22.0
B8934-4	13.1	6.8	19.9
B8943-4	12.2	6.6	18.8
BR7088-18	10.8	5.4	16.2
BR7093-23	7.8	6.0	13.8
C7232-4	13.2	5.1	18.3
C7490-2	13.8	5.2	19.0
C74109-8	9.0	5.6	14.6
CF72107-15	8.8	5.6	14.4
CF7353-1	11.0	5.6	16.6
CF74135-3	22.2	5.0	27.2
CF7523-1	8.4	7.6	16.0
CF76183-2	22.9	5.0	27.9
CF7688-9	11.5	5.6	17.1
F73008	6.4	7.2	13.6
MN7973	11.1	5.2	16.3
MN8224	14.6	6.4	21.0
MN8757	17.0	6.0	23.0
MN9319	9.6	4.6	14.2

[1]Samples were stored at 45F., 85% R.H. from harvest until December 13, 1982, then warmed for 48 hours at 65F. before peeling.

[2]Average of two 9-pound samples peeled for two minutes in a Univex H-200 abrasive type peeler.

Table 92. After cooking graying indices for 49 potato varieties grown at Presque Isle, Maine - 1982.

Variety[1]	Color index[2]	Variety[1]	Color index[2]
Caribe	7.1	B5662-WV13	6.9
Conestoga	7.2	B6043-WV6	6.9
GoldRus	7.3	B6928-WV14	7.0
Katahdin	7.4	B6949-WV3	6.8
Kennebec (med.)	6.9	B7019-WV1	7.0
Kennebec (med. late)	7.4	B8833-6	7.2
Michibonne	7.2	B8934-4	7.2
Michimac	7.2	B8943-4	7.0
Rideau	7.2	BR7088-18	7.4
Rosa	7.3	BR7093-23	6.7
Russet Burbank	6.6	C7232-4	7.5
Simcoe	7.4	C7490-2	6.9
Superior	7.0	C74109-8	7.3
Trent	7.5	CF7353-1	7.5
Yukon Gold	Yel. flesh	CF7523-1	7.0
AF201-25	7.5	CF7688-9	7.0
AF221-21	7.2	CF72107-25	7.2
AF222-1	7.1	CF74135-3	7.5
AF236-1	6.4	CF76183-2	7.2
AF238-66	6.8	F73008	Yel. flesh
AF303-5	7.4	MN7973	7.1
AF307-5	7.0	MN8224	6.7
AF330-1	7.4	MN8757	6.6
AF332-9	7.4	MN9319	6.9
AS201-10	7.0		

[1]All tuber samples were stored at 38F., 85% R.H. from harvest until February 1, 1983. Warmed at 60F. until February 3, 1983.

[2]Tubers diced, blanched for 5 minutes in boiling water, cooled to 120F. in tap water. Color readings made after one-half hour by comparison with Munsel 18-step Neutral Color Scale, 1952 edition. High color indices indicate lighter color.

three processors was 7.0 or higher for frozen mashed, diced, and pre-peeled products. If the 7.0 rating is used as a standard, most of the 49 varieties or clones listed in Table 92 were acceptable for by-product use.

APPEARANCE AND DEFECTS

General appearance of tubers and visable defects in marketing potatoes, particularly when washed and packaged in vent-view, clear poly bags or count boxes, are of great importance since so many consumers buy a product on cosmetic (eye appeal) appearance rather than quality or nutritional values. A detailed subjective classification of varieties grown at Presque Isle in 1982 was made for appearance and external defects. Tuber maturity, skin color, brightness, tuber shape, uniformity of size, smoothness of skin; and several external defects such as sclerotial bodies, silver scurf, common, pitted, and acid scab, and other surface lesions were all considered in making these appearance ratings.

Appearance and external defects indices, as presented in Table 93, indicate a relative comparison among new clones and standard commercial varieties grown under the same soil, cultural, and climatic conditions. In Table 93, the higher the final index number, the better the appearance; and thus fewer tuber defects. In the final index, some of the defects are subtracted from the appearance index, since some of the defects could be reduced or eliminated by improved cultural and/or handling practices. Note that many varieties had better appearance ratings than the standard varieties they should relate to in maturity grouping.

As a point of reference, the average final index of 80 represents a near ideal tuber in terms of eye appeal or cosmetic appearance. Using this reference point of 80, the data presented in Table 93 indicate that 16 of the 49 varieties evaluated had excellent or better appearance in 1982; and only four varieties had unsatisfactory appearance.

Table 93. Appearance and defects indices for 49 potato varieties grown at Aroostook Farm, Presque Isle, Maine-1982.

Variety[1]	Appearance index	Defects index	Final index[2]
Caribe	67.7	8.2	59.5
Conestoga	82.8	12.1	70.7
GoldRus	57.6	5.3	52.3
Katahdin	79.6	2.6	77.0
Kennebec (med.)	70.4	10.2	60.2
Kennebec (med. late)	69.3	2.7	66.6
Michibonne	85.6	1.3	84.3
Michimac	82.2	3.2	79.0
Rideau	90.8	4.0	86.8
Rosa	76.4	3.5	72.9
Russet Burbank	66.6	14.1	52.5
Simcoe	84.1	6.9	77.2
Superior	70.6	8.5	62.1
Trent	91.9	4.3	87.6
Yukon Gold	90.4	3.1	87.3
AF201-25	90.6	5.3	85.3
AF221-1	80.6	3.7	76.9
AF222-1	77.2	11.8	65.4
AF236-1	83.9	6.2	77.7
AF238-66	85.0	10.8	74.2
AF303-5	82.4	5.3	77.1
AF307-5	84.9	6.2	78.7
AF330-1	86.6	9.6	77.0
AF332-9	69.6	6.6	63.0
AS201-10	92.2	12.8	79.4
B5662-WV13	77.2	1.1	76.1
B6043-WV6	87.3	3.4	83.9
B6928-WV14	91.8	0.5	91.3
B6949-WV3	76.8	4.4	72.4
B7019-WV1	87.4	5.5	81.9

Table 93 - continued

Variety[1]	Appearance index	Defects index	Final index[2]
B8833-6	84.2	9.0	75.2
B8934-4	64.0	4.4	59.6
B8943-4	60.0	5.4	54.6
BR7088-18	89.5	3.5	86.0
BR7093-23	82.2	3.8	78.4
C7232-4	87.4	6.5	80.9
C7490-2	90.6	11.4	79.2
C74109-8	87.8	0.3	87.5
CF7353-1	76.1	3.3	72.8
CF7523-1	81.4	4.5	76.9
CF7688-9	81.2	8.0	73.2
CF72107-15	85.6	3.5	82.1
CF74135-3	88.6	7.0	81.6
CF76183-2	88.8	10.0	78.8
F73008	82.9	0.1	82.8
MN7973	83.2	2.9	80.3
MN8224	78.5	12.0	66.5
MN8757	76.9	5.7	71.2
MN9319	84.0	3.7	80.3

[1]Samples were stored at 38F., 85% R.H. from harvest until examined January 18-20, 1983.

[2]Rating code: > 80 = excellent
60 - 79 = satisfactory
< 60 = unsatisfactory

FRIED PRODUCT COLOR AND TEXTURE

Tubers were saved from all specific gravity tests conducted at Presque Isle, Maine, and were stored at 50-55F. until frying tests were made in late November and early December 1983. In addition, several other locations sent samples to Maine for specific gravity determinations and these samples were saved for chip color ratings. Since by option voted at the 1979 annual meeting of the NE107 Technical Committee, cooperators were not required to provide samples for specific gravity and chip color determinations in Maine, many locations discontinued chip color determinations.

From tuber samples which were available, potato chips were made by cutting each tuber in half and taking a slice from the center by use of a rotary food slicer. Tuber slices were rinsed in lukewarm water, placed on paper towels to remove excess water, and then fried at 375F. in liquid vegetable shortening until bubbling stopped.

Each chip was classified almost immediately after frying and draining into one of ten color classes varying from "1 - very light" to "10 - very dark". Weighted averages or indices were calculated by multiplying the number of chips in each color class by the class color number, totaling, and dividing by the total number of chips in each sample. Color ratings were made subjectively using PCII Color Chart 1206-U.

Chip colors from unreplicated samples from White's Cove and Florenceville, New Brunswick, Canada are presented in Tables 94 and 95, respectively. Only one variety, C7232-4, grown at White's Cove; and Yankee Chipper, AF236-1, and BR7088-18, grown at Florenceville, had satisfactory chip colors (7.0 or less).

Chip color indices for all varieties grown at Presque Isle are shown in Table 96. Rosa, AF236-1, AF330-1, BR7088-18, BR7093-23, CF7353-1, CF76183-2, CF77154-10, MN8224, and MN9319 all had satisfactory chip color. Of the 45 entries in this test, only eleven

Table 94. Chip color indices for 18 main crop potato varieties grown at Florenceville, New Brunswick, Canada - 1983.

Variety	Chip color[1]
Conestoga	8.2
Crystal	9.8
Hampton	10.0
Islander	7.2
Katahdin	9.0
Kennebec	9.0
Russet Burbank	9.2
Russette	10.0
Yankee Chipper	6.8
AF236-1	5.3
AF303-5	8.7
B6949-WV3	9.5
BR5991-WV16	7.9
BR7088-18	6.4
CF7353-1	8.0
CF7358-14	7.4
MN9319	7.9
NY59	10.0

[1]Chip colors with lower numbers are lighter in color.

Table 95. Chip color indices for 9 early crop potato varieties grown at White's Cove, New Brunswick, Canada - 1983.

Variety	Chip color[1]
Jemseg	10.0
Redsen	10.0
Superior	9.3
Yankee Supreme	8.7
AS201-10	10.0
B5662-WV13	8.2
C7232-4	6.8
CF74135-3	10.0
CF7523-1	10.0

[1]Chips colors with lower numbers are lighter in color.

Table 96. Chip color indices for 44 varieties grown at Presque Isle, Maine - 1983.

Variety	Chip color[1]	Variety	Chip color[1]
Alaska Russet	8.4	B6928-WV14	10.0
Crystal	8.2	B6949-WV3	8.9
Hampton	9.0	B7019-WV1	8.1
Katahdin	8.9	BR7088-18	6.2
Kennebec	8.9	BR7093-23	6.5
Michibonne	8.9	C74109-8	8.6
Michimac	9.0	CF72107-15	7.9
Nobless Russet	8.4	CF72111-5	9.9
Redsen	6.8	CF7353-1	6.8
Red Pontiac	10.0	CF74135-3	7.4
Rhine Red	9.7	CF7523-1	8.5
Rosa	6.4	CF7587-7	8.0
Russet Burbank	8.8	CF7688-9	7.9
Superior	6.2	CF76183-2	5.2
AF201-25	8.5	CF77154-10	4.8
AF222-1	7.1	F73008	8.4
AF236-1	4.6	MN7973	8.0
AF303-5	8.3	MN8224	6.5
AF307-5	8.6	MN9319	6.9
AF330-1	4.2	NY59	10.0
AF332-9	9.6	NY64	9.9
AS201-10	7.2		
B5662-WV13	7.4	Waller Duncan L.S.D. (0.05)	0.5

[1]Chips with lower index numbers are lighter in color.

varieties had acceptable chip color.

In a variety test conducted at Tully, New York by Agway, Inc. none of the 20 varieties had satisfactory chip color, as shown in Table 97.

Chip colors for the Ohio variety test are presented in Table 98. Of the 22 entries, all except five varieties had satisfactory chip color.

Pennsylvania had the best overall chip colors of all test locations in the Northeast. In a 12-entry test in Schuylkill County, Pennsylvania, six of the 12 varieties had acceptable chip color, as shown in Table 99. In Somerset County, where four separate tests were conducted, very few selections did not have acceptable chip color, as indicated in Table 100.

At University Park, Pennsylvania, which also had four separate tests, 32 varieties out of the 59 varieties had acceptable chip colors, as shown in Table 101. Some of the best were: Buckskin, Denali, Norchip, AF236-1, C7232-4, and CF76183-2, as shown in Table 101.

Chip color indices for the 21 potato varieties grown at Kingston, Rhode Island are presented in Table 102. Twelve of the 21 varieties had very good chip color with Islander, Redsen, Rosa, Yankee Chipper, and WF564-3 showing excellent chip color.

At Guildhall, Vermont, 11 of the 18 potato varieties grown had satisfactory chip color. Seedlings B5662-WV13, CF77154-10, and WF564-3 had the best chip colors, as shown in Table 103.

Chip color indices for 10 medium-medium late potato varieties grown at Reedsville, West Virginia are presented in Table 104. None of these 10 varieties even approached satisfactory chip color. The same was true for 4 varieties in a russet test. All varieties produced very dark chip colors, as shown in Table 105.

Table 97. Chip color indices for 20 potato varieties grown at Tully, New York - 1983.

Variety	Chip Color[1]	Agtron readings[2]
Acadia Russet	10	24
BelRus	10	33
Caribe	8	46
Hampton	9	35
Islander	9	42
Katahdin	9	37
Rosa	9	42
Russette	10	30
Shepody	9	36
Superior	9	40
Yankee Chipper	9	43
Yankee Supreme	9	42
AF303-5	9	39
B5662-WV13	8	46
B6949-WV3	10	34
BR5991-WV16	10	33
CF74135-3	9	36
F73008	9	39
NY59	10	27
WF564-3	9	37

[1]Chips with lower indices are lighter in color.

Index readings are from color standards of The Potato Chip/ Snack Food Association.

Color rating of 7.0 or lower is acceptable.

[2]Readings converted to comparable chip color reading of PCII Color Chart 1206-U.

Table 98. Chip color indices for 22 potato varieties grown at Wooster, Ohio - 1983.

Variety	Chip color[1]
Acadia Russet	9
Denali	7
Hampton	7
Katahdin	8
Nobless Russet	7
Shepody	7
Simcoe	7
Superior	7
AF238-66	7
AF303-5	8
B5662-WV13	7
B6949-WV3	7
BR5991-WV16	7
BR7088-18	6
BR7093-23	7
CF7688-9	7
CF74135-3	6
CF76183-2	7
CF77154-10	7
F73008	8
NY59	9
WF564-3	6

[1]Chip colors with lower numbers are lighter in color.

Table 99. Chip color indices for 12 potato varieties grown in Schuylkill County, Pennsylvania - 1983.

Variety	Chip color[1]
Caribe	5.4
Delta Gold	7.6
Jemseg	7.4
Norland	7.8
Redsen	7.0
Superior	7.1
Yukon Gold	8.4
AF330-1	5.4
B5662-WV13	6.4
CF74135-3	7.8
CF7523-1	8.0
CF76183-2	5.5
Waller Duncan L.S.D. (0.05)	0.9

[1]Chips with lower indices are lighter in color.

Table 100. Chip color indices for 43 potato varieties grown in Somerset County, Pennsylvania - 1983.

Variety	Chip Color[1] and Test			
	Early Tablestock	Chipping	Tablestock	Russet
Acadia Russet				8.3
Belchip		6.9		
BelRus	5.8			
Buckskin		6.4		
Caribe	5.0			
Chipbelle		6.2		
Conestoga		6.5		
Delta Gold	7.1		7.7	
Denali		5.4		
Hampton			7.2	
Islander			5.7	
Jemseg	7.4			
Katahdin			7.6	
Kennebec		6.5		6.8
Nobless Russet				6.6
Norchip		4.6		
Norland	7.5			
Penn 71		5.1		
Redsen	6.0		7.1	
Rosa		5.9	6.0	
Russette				6.8
Simcoe	4.2			
Superior	7.2		7.2	
Yankee Chipper		5.4	4.6	
Yankee Supreme		5.8		
Yukon Gold	7.8		7.7	
AF236-1		5.2		
AF303-5		6.0	6.4	
AF330-1	4.6			
B5662-WV13	5.9			
B6043-WV6			8.4	
B6949-WV3			7.3	
BR5991-WV16			7.2	
BR7088-18		5.2		
BR7093-23		6.2		
C7232-4		4.5		
C7353-1		5.9	6.2	
CF74135-3	7.6			
F73008		7.2	7.4	6.9
MN7973			6.8	
MN9319			5.5	
NY59			8.2	
WF564-3				5.6
Waller Duncan L.S.D. (0.05)	0.8	0.8	1.0	0.6

[1]Chips with lower indices are lighter in color.

Table 101. Chip color indices for 45 potato varieties grown at University Park, Pennsylvania - 1983.

Variety	Chip Color[1] and Test				
	Early Tablestock	Chipping	Tablestock	Russet	Late Tablestock
Acadia Russet				9.4	
Belchip		7.2			
BelRus					9.4
Buckskin		6.4			
Caribe	6.2				9.2
Chipbelle		5.6			
Conestoga		7.9			
Delta Gold	7.8		7.6		9.6
Denali		6.0			
Hampton			8.1		
Islander			7.0		
Jemseg	7.8				9.9
Katahdin			7.5		
Kennebec		7.0		7.8	
Nobless Russet				7.7	
Norchip		6.2			
Norland	9.0				9.5
Penn 71		6.4			
Redsen	7.8		7.6		9.3
Rosa		6.5	6.8		
Russette				7.8	
Simcoe					8.2
Superior	8.0		8.8		9.2
Yankee Chipper		6.6	6.2		
Yankee Supreme		7.6			
Yukon Gold	9.0		8.8		10.0
AF236-1		6.2			
AF303-5		6.8	6.7		
AF330-1	5.5				7.4
B5662-WV13	6.6				9.6
B6043-WV16			8.4		
B6949-WV16			7.4		
BR5991-WV16			7.6		
BR7088-18		6.4			
BR7093-23		6.1			
C7232-4		5.2			
CF7353-1		6.6	6.7		
CF74135-3	8.8				10.0
CF7523-1	8.0				
CF76183-2	6.4				

Table 101 - continued

Variety	Chip Color[1] and Test				
	Early Tablestock	Chipping	Tablestock	Russet	Late Tablestock
F73008		7.2	7.0	7.1	
MN7973			7.5		
MN9319			7.1		
NY59			9.2		
WF564-3				7.3	
Waller Duncan L.S.D. (0.05)	0.8	1.0	0.8	1.0	0.8

[1]Chips with lower indices are lighter in color.

Table 102. Chip color indices for 21 potato varieties grown at Kingston, Rhode Island - 1983.

Variety	Chip color[1]
Caribe	6.8
Green Mountain	8.0
Islander	4.8
Katahdin	7.0
Nobless Russet	7.2
Norland	8.6
Redsen	6.4
Rosa	4.6
Shepody	7.2
Superior	7.0
Yankee Chipper	5.0
AF92-3	7.8
B5662-WV13	7.2
B6949-WV3	7.0
BR5991-WV16	7.0
CF74135-3	7.8
CF7523-1	8.2
CF77154-10	6.2
F73008	5.8
NY59	9.0
WF564-3	4.8

[1]Chips with lower indices are lighter in color.

Table 103. Chip color indices for 18 potato varieties grown at Guildhall, Vermont - 1983.

Variety	Chip color[1]
Acadia Russet	8.3
Hampton	7.8
Katahdin	6.9
Kennebec	6.0
Michibonne	6.5
Onaway	8.6
Rosa	5.3
Russette	7.5
Superior	6.5
B5662-WV13	4.2
B6949-WV3	6.9
B7523-1	7.6
C7490-2	6.2
CF74135-3	7.9
CF77154-10	4.5
F73008	5.4
NY59	8.5
WF564-3	5.2
Waller Duncan L.S.D. (0.05)	0.8

[1]Chip colors with lower indices are lighter in color.

Table 104. Chip color indices for 10 medium-medium late potato varieties grown at Reedsville, West Virginia - 1983.

Variety	Chip color[1]
Hampton	10.0
Katahdin	9.9
AF236-1	8.9
AF303-5	9.8
B7019-WV1	9.8
BR7088-18	9.6
BR7093-23	10.0
CF74135-3	10.0
F73008	9.5
NY59	10.0
Waller Duncan L.S.D. (0.05)	0.5

Table 105. Chip color indices for 4 russeted potato varieties grown at Reedsville, West Virginia - 1983.

Variety	Chip color[1]
Acadia Russet	10.0
Russet Burbank	9.3
Russette	9.8
WF564-3	10.0
Waller Duncan L.S.D. (0.05)	0.5

[1]Chip colors with lower numbers are lighter in color.

Tuber samples from the 1982 variety trial at Presque Isle were stored at 38°F., removed on February 2, 1983, and warmed at 70°F. for two and three week periods. On February 16, tubers reconditioned for two weeks were chipped and rated with the results shown in Table 106. On February 17, tuber samples from 38°F. were also chipped and rated for color. None of the varieties had acceptable chip color (less than 7.0) but a few were within the 10-point color range, as shown in Table 106. When samples were reconditioned for three weeks, many varieties showed some improvement in chip color as compared to the chip colors from samples reconditioned for two weeks. About a dozen varieties, however, showed no improvement in chip color which indicates that they probably would never recondition regardless of time exposed to 70°F. temperature.

During early December 1983, samples from all varieties grown at Presque Isle, Maine in 1983 were tested for french fry color and texture. One french fry plug, ½ inch in diameter was cut from each of five tubers (stem to seed end). Plugs were trimmed to uniform length (approximately 2½ inches), rinsed in lukewarm water, dried on paper towels to remove excess water, and then fried at 375°F. for four minutes in vegetable shortening. Each french fry was classified into one of five color classes ranging from "1 - very light" to "5 - very dark" using USDA Color Standards for Frozen French Fried Potatoes (1978 edition).

Color indices for french fries were calculated by multiplying the number of fries in each color class by the color class number, totaling, and dividing by the number of fries in each sample. After color classification, each plug was broken open and the internal texture rated as "1 - mealy", "2 - intermediate", or "3 - salvey", and a weighted texture index calculated.

French fry color and texture indices for the potato varieties grown at Presque Isle are presented in Table 107. Thirty-three of the 44 varieties had acceptable french fry color (less than 3.0) and

Table 106. Potato chip indices for 49 potato varieties grown at Presque Isle, Maine - 1982.

Variety[1]	50F. 12-15-82	38F. 2-17-83	2 wks. 70F. 2-16-83	3 wks. 70F. 2-22-83
Caribe	8.0	10.0	9.4	9.0
Conestoga	8.1	10.0	9.4	9.9
GoldRus	8.0	10.0	9.9	9.8
Katahdin	9.4	10.0	9.9	9.3
Kennebec (med.)	8.7	10.0	9.0	9.9
Kennebec (med. late)	---	10.0	9.8	9.6
Michibonne	8.7	10.0	10.0	10.0
Michimac	9.6	10.0	9.9	9.5
Rideau	10.0	10.0	10.0	9.9
Rosa	8.3	10.0	10.0	9.9
Russet Burbank	10.0	10.0	10.0	10.0
Simcoe	7.4	9.8	8.7	8.4
Superior	8.9	10.0	8.9	9.1
Trent	7.7	10.0	8.2	9.1
Yukon Gold	9.6	10.0	9.9	10.0
AF201-25	9.3	10.0	9.5	9.5
AF221-21	8.1	9.8	9.2	9.5
AF222-1	8.5	10.0	9.9	9.8
AF236-1	5.4	9.4	7.8	7.9
AF238-66	8.3	10.0	9.6	9.1
AF303-5	8.2	10.0	10.0	9.6
AF307-5	8.8	10.0	10.0	10.0
AF330-1	6.6	10.0	8.9	8.3
AF332-9	9.3	10.0	10.0	9.9
AS201-10	8.6	10.0	9.8	9.9
B5662-WV13	8.2	10.0	9.2	9.4
B6043-WV6	10.0	10.0	10.0	10.0
B6928-WV14	10.0	10.0	10.0	10.0
B6949-WV3	9.7	10.0	9.9	9.9
B7019-WV1	8.8	10.0	9.9	9.9

Table 106 - continued

Variety[1]	50F. 12-15-82	38F. 2-17-83	2 wks. 70F. 2-16-83	3 wks. 70F. 2-22-83
B8833-6	9.5	10.0	9.9	9.8
B8934-4	8.7	10.0	9.9	8.9
B8943-4	9.2	10.0	9.8	10.0
BR7088-18	8.0	10.0	9.9	9.8
BR7093-23	8.0	10.0	8.2	8.1
C7232-4	4.7	9.8	7.3	7.1
C7490-2	7.4	10.0	9.9	9.9
C74109-8	9.1	10.0	9.9	9.8
CF7353-1	8.1	10.0	9.7	9.8
CF7523-1	9.8	10.0	10.0	10.0
CF7688-9	8.2	10.0	9.4	9.3
CF72107-25	8.8	10.0	9.9	10.0
CF74135-3	9.3	10.0	10.0	10.0
CF76183-2	7.6	10.0	9.9	9.9
F73008	9.6	10.0	9.7	9.8
MN7973	8.8	10.0	10.0	10.0
MN8224	7.3	9.9	9.4	9.2
MN8757	10.0	10.0	10.0	10.0
MN9319	8.1	10.0	10.0	9.8

[1]Chips with lower indices are lighter in color.

Reconditioned samples were stored at 38F., 85% R.H. from harvest until reconditioning.

Table 107. French fry color and texture indices for potato varieties grown at Presque Isle, Maine - 1983.

Variety	French fry		Variety	French fry	
	Color[1]	Texture[2]		Color[1]	Texture[2]
Alaska Russet	3.2	1.5	B6928-WV14	3.4	1.3
Crystal	2.2	1.7	B6949-WV3	2.8	1.1
Hampton	3.3	1.0	B7019-WV1	1.9	1.2
Katahdin	2.5	1.0	BR7088-18	1.2	1.0
Kennebec	2.6	1.1	BR7093-23	1.1	1.4
Michibonne	3.0	1.1	C74109-8	2.2	1.0
Michimac	2.9	1.1	CF72107-15	2.2	1.4
Nobless Russet	3.3	1.4	CF72111-5	3.4	1.1
Redsen	1.1	1.1	CF7353-1	1.1	1.2
Red Pontiac	4.3	1.0	CF74135-3	1.8	1.1
Rhine Red	3.6	1.2	CF7523-1	2.4	1.0
Rosa	1.1	1.1	CF7587-7	2.4	1.1
Russet Burbank	3.2	1.2	CF7688-9	1.9	1.0
Superior	1.2	1.1	CF76183-2	1.0	1.1
AF201-25	2.8	2.3	CF77154-10	1.0	1.0
AF222-1	1.4	1.0	F73008	2.3	1.4
AF236-1	1.0	1.4	MN7973	1.4	1.9
AF303-5	2.7	1.9	MN8224	1.0	1.0
AF307-5	2.4	1.0	MN9319	1.8	2.1
AF330-1	1.1	1.0	NY59	4.1	1.2
AF332-9	3.2	1.2	NY64	4.0	1.0
AS201-10	1.6	1.0			
B5662-WV13	1.4	1.1	Waller Duncan L.S.D. (0.05)	0.4	0.3

[1]French fries with lower indices are lighter in color.

[2]Lower texture indices indicate a mealier texture.

only five varieties had unacceptable texture (less than 1.4).

COMMON SCAB TOLERANCE

Common scab damage to potato tubers varies between years and among varieties and locations. Scab appears to be a problem in most potato production areas of the Northeast and the problem also appears to be getting progressively worse.

In 1983, a scab test was conducted at Riverhead, New York with 20 entries to determine scab severity, lesion type, and percent of tubers having scab lesions. These data are presented in Table 108. Note that the scab severity ratings indicate that none of the varieties had complete resistance to scab; and varieties such as Campbell 11, Denali, Penn 71, Yankee Supreme, and F73008 are apparently very scab susceptible.

COLORADO POTATO BEETLE RESISTANCE

Potato plant defoliation damage from Colorado potato beetles has been getting progressively worse for some time. In 1983, 14 varieties or cultivars were planted at Newport, Maine and rated for defoliation damage. Note in Table 109 that beetles did a very good job of defoliating most cultivars and that several varieties appear to be liked by the beetles more than others. This test at Newport also reveals some drought tolerance ratings, as shown by the yields taken at this location. BelRus, Katahdin, Yankee Chipper, BR7093-23, and some others did not appear to be very tolerant to dry growing conditions; whereas, Monona, Yankee Supreme, and CF7358-14 appeared to have some degree of tolerance to dry soil conditions.

VARIETAL HERBICIDE DAMAGE

Metribuzin herbicide damage to potatoes varies among varieties. During 1983, another replicated metribuzin susceptibility study was conducted with three named varieties and two promising clones

Table 108. Scab severity, lesion surface, lesion type, and percent of tubers with scab for 20 varieties grown in plots naturally infested with *Streptomyces scabies* at Riverhead, New York - 1983.

Variety	Scab[1] Severity Rating	Lesion[2] Surface Area Index	Lesion[3] Type Index	% Tubers with Scab
Atlantic	42.3	0.1	0.7	33.1
BelRus	24.3	0.1	0.7	33.3
Buckskin	42.0	0.2	0.7	43.3
Campbell 11	124.3	0.5	1.4	63.8
Chippewa	60.0	0.4	0.8	51.9
Denali	170.0	0.6	1.3	57.8
Hampton	80.0	0.3	1.0	51.1
Katahdin	56.3	0.3	0.8	41.9
Onaway	47.5	0.4	0.6	46.3
Penn 71	110.8	0.5	1.3	63.4
Redsen	8.3	0.1	0.2	11.5
Superior	10.5	0.1	0.2	12.1
Yankee Supreme	128.5	0.5	1.4	69.4
B5662-WV13	25.3	0.3	0.4	31.8
B6949-WV3	51.5	0.3	0.9	50.1
BR7093-23	85.3	0.7	1.0	69.4
CF74135-3	79.0	0.3	1.0	46.6
F73008	110.3	0.6	1.4	72.5
NY59	55.5	0.2	0.9	42.7
WF564-3	30.0	0.2	0.5	32.8
Waller Duncan L.S.D. (0.05)	60.2	0.4	0.6	29.2

[1]Severity ratings are calculated from surface area and lesion type indices: 0 = no scab; 140 = 61% or more of tuber surface with deep pitted scab.

[2]0 = no lesion; 4 = greater than 61% of tuber surface scabbed.

[3]0 = no lesion; 4 = deep pitted lesions.

Table 109. Mean yield and mean visible rating of Colorado potato beetle defoliation of cultivars grown at Newport, Maine - 1983.

Variety[1]	Yield Cwt./A.	Defoliation rating[2]
Atlantic	63	3.92
BelRus	22	4.58
Islander	39	4.33
Katahdin	33	3.83
Kennebec	37	4.00
Monona	105	3.67
Norchip	65	3.92
Superior	76	4.42
Yankee Chipper	27	4.67
Yankee Supreme	112	3.33
BR7093-23	24	4.25
CF7358-14	120	4.50
CF7523-1	47	3.92
WF564-3	63	3.83

[1]Planted - May 26; killed - September 2; harvested - September 20, 1983.

Seedpieces of all varieties spaced 9 inches apart.

Fertilization: 1300 lbs. of 12-15-15 per acre.

[2]Visual defoliation rating on August 16:

0 = no defoliation.
1 = some leaflets with holes.
2 = some leaflets consumed, a few bare petioles.
3 = several stems mostly defoliated.
4 = most stems defoliated.
5 = all stems defoliated.

varying the rates of metribuzin applied at layby. Data presented in Table 110 indicate that yields were not reduced significantly by layby applications of metribuzin, but there was a numerical decrease in yield for Caribe, Acadia Russet, Onaway, and CF7358-14. No foliage symptoms of metribuzin damage occurred in any of the varieties.

SEEDPIECE SPACING AND NITROGEN RATE STUDIES

Seedpiece spacing and nitrogen rate studies for clone BR7093-23 at Presque Isle, Maine in 1983 were conducted and the yields and tuber size distribution are presented in Table 111.

Highest total and usable yields were obtained with the 8-inch seedpiece spacing and at the 130-pound per acre level of nitrogen application. If, however, the existing regulations of 2½ inch minimum tuber size for Maine fresh market grades continues, it would appear that growers should go to the 10-inch seedpiece spacing to increase the percentages of tubers in the larger size classes, but at the expense of lower total yields.

At this time, the recommendation for seedpiece spacing for BR7093-23 will be 8 - 9 inches with 130 pounds of nitrogen per acre.

Table 110. Effect of three rates of metribuzin applied at layby on yield, specific gravity, and foliage injury to five potato varieties. Presque Isle, Maine - 1983.

Variety and Treatments[1] Lbs. Metribuzin A.I. per Acre	Yield Cwt./A.	Specific gravity	Percent Crop Injury[2] Aug. 8
Acadia Russet			
0.10 lb.	375	1.071	9
0.25 "	364	1.072	9
0.50 "	347	1.073	9
Caribe			
0.10 lb.	380	1.071	9
0.25 "	373	1.070	9
0.50 "	359	1.071	9
Onaway			
0.10 lb.	416	1.071	9
0.25 "	409	1.068	9
0.50 "	410	1.070	9
BR7093-23			
0.10 lb.	364	1.080	9
0.25 "	367	1.079	9
0.50 "	374	1.077	9
CF7358-14			
0.10 lb.	336	1.077	9
0.25 "	336	1.077	9
0.50 "	326	1.077	9
Waller Duncan L.S.D. (0.05)	33	0.003	

[1]Planted - May 26; killed - September 14; harvested - September 27.

Preemergence overall treatment of 0.5 lb. metribuzin per acre applied on June 7, 1983.

Layby treatments applied - July 21. Temperature - 63F., overcast; soil - moist; wind - 5-8 mph, south.

[2]Rating code: 9 = no crop damage.

1 = all crop plants killed.

Table 111. Effect of seedpiece spacing and nitrogen fertilization on total yield, usable yield, specific gravity, and tuber size distribution of potato seedling BR7093-23. Maine - 1983.

Seedpiece spacing and nitrogen fertilization rate[1]	Yield Cwt./A.	Usable[2] yield Cwt./A.	Specific gravity	Percent Tuber Size Distribution				
				1½ to 1-7/8 inches	1-7/8 to 2¼ inches	2¼ to 2½ inches	2½ to 3¼ inches	3¼ to 4 inches
100 lbs. N per Acre								
8 inches	403	344	1.077	3.9	17.6	24.7	47.5	6.3
10 "	398	343	1.079	3.5	16.2	26.8	49.8	3.7
12 "	399	332	1.077	3.2	14.6	23.7	50.9	7.7
14 "	389	309	1.073	3.1	11.2	16.5	50.7	18.4
130 lbs. N per Acre								
8 inches	440	372	1.075	4.1	18.5	25.7	46.8	4.8
10 "	409	338	1.074	2.6	11.8	21.6	50.1	13.8
12 "	398	334	1.075	3.1	11.5	19.6	55.5	10.2
14 "	393	294	1.076	3.1	13.1	19.4	53.8	10.6
160 lbs. N per Acre								
8 inches	425	367	1.075	2.7	16.0	26.6	49.9	4.8
10 "	404	341	1.073	3.2	15.8	22.3	47.8	10.9
12 "	413	352	1.074	2.4	11.7	21.0	53.3	11.5
14 "	382	327	1.072	2.9	11.1	19.2	53.0	13.8
Waller Duncan L.S.D. (0.05)	65	69	N.S.					

[1]Planted - May 21; killed - September 14; harvested - September 27, 1983.

[2]Usable yield equals total yield minus defects. P_2O_5 and K_2O held constant at 160 pounds per acre.

OBSERVATIONS FOR VARIETIES GROWN IN THE 1983 NORTHEAST COOPERATIVE VARIETY TRIALS

The following notes, observations, and opinions represent a compilation of information from the many cooperators in the 1983 Northeast Cooperative Potato Variety Trials. Many of the cooperators supplied observations on the data collection forms and/or by written or oral communications. The senior author condensed the observations for inclusion in this section of the variety trial report.

ACADIA RUSSET - Released by Canada in 1981. Acadia Russet is a medium late maturing variety with resistance to leafroll and fusarium and phoma tuber rots. Tubers are oblong to long in type with a buff colored and lightly russeted skin. This variety has had good yields, gravities, appearance ratings, and culinary qualities. Even though it does produce some knobby tubers and heat sprouts in warm climates, it washes and packs well for fresh markets.

ALASKA RUSSET - Released recently by Alaska as a late maturing variety that produces oblong to long heavily netted tubers. Resistance to diseases is unknown at this time. In the first year of trial in Maine, yield and specific gravity were less than Russet Burbank. Chip colors were dark but french fry color was acceptable. Storage ability, reconditioning ability, and other post season measurements are not available at this time.

ALLAGASH RUSSET - The first variety released from the Maine Potato Breeding Program that produces very attractive light russeted oblong-long tubers. The Allagash Russet is a medium maturing variety that has resistance to net necrosis but is susceptible to common scab. Yields have varied among test locations which also reported high percentages of hollow heart. Even though it appeared a few years ago to be a questionable variety and the seed sources reduced, in 1983 there was a renewed demand for seed of this variety.

ATLANTIC - A medium maturing variety jointly released by USDA and several states. Atlantic produces oblong type tubers that are lightly netted to scurfy, and usually quite attractive. Disease resistance is indicated to late blight, golden nematode, net necrosis, and viruses A and X. Atlantic yields very well, has high gravities, and is a consistently good chipper. In the mid-Atlantic production areas, internal necrosis and hollow heart have been problems but it continues to increase in popularity as a fresh market and processing variety.

BATOCHE - A red skinned, medium early maturing variety from Canada that has resistance to verticillium wilt. Tubers are round, quite rough, but hold the red color well even after storage. Yields and specific gravity have been acceptable. The NE107 Technical Committee suggested that Batoch be discarded from further testing in 1982 and it was finally discarded from Sangerville in 1983.

BELCHIP - A late maturing chipping variety that has resistance to late blight, common scab, viruses A and X, net necrosis, and golden nematode. Tubers are round, cream colored, and very poor in appearance. Yields and gravities have been acceptable but storage quality has been poor. It does, however, chip from the field, from storage, and does recondition.

BELRUS - A medium late maturing variety with very heavily russeted, oblong tubers. BelRus has resistance to verticillium wilt, net necrosis, leafroll, and virus A. This variety has had a high specific gravity but yields have been very erratic. Packers, however, particularly those putting up premium packs or count boxes, have been willing to pay premium prices to growers. Recently, some studies in Maine have indicated that BelRus was a symptomless carrier of ring rot, resulting in cancellation of the license to be grown in Canada for seed.

BUCKSKIN - A late maturing, round, rough skinned variety from Pennsylvania. Yields have been erratic in the Northeast with fair to good specific gravity. Tubers do scab and very often show hollow

heart. Buckskin has been discarded from seed increase at Sangerville.

CAMPBELL 11 - Released from the breeding program of the Campbell Institute for Agricultural Research. Tubers are round to oblong, buff colored, and fair in general appearance. Campbell 11 has medium late maturity and resistance to verticillium wilt, late blight, and golden nematode. Long Island has shown some interest in this variety because of golden nematode resistance. It has been discarded from seed increase at Sangerville.

CAMPBELL 13 - Another release by the Campbell Instutute for Agricultural Research. This variety is medium in maturity and produces oblong, smooth, white, and slightly netted tubers with excellent general appearance. Campbell 13 has resistance to golden nematode, net necrosis, late blight, and verticillium wilt. Yields and specific gravities have been good. Further increase of seed Sangerville has been discontinued because of lack of demand for testing.

CARIBE - A very early maturing purple skinned variety developed by Agriculture Canada. Tubers of Caribe have resistance to common scab, are round to oblong, and are fair in appearance. Yields are higher than Superior but gravities are lower. French fry colors are good and storage ability fair but better than Superior.

CENTENNIAL RUSSET - A late maturing russet variety released from Colorado and Washington states. Tubers are oblong to long, heavily russeted and fair to poor in general appearance. Usable yields have been slightly better than Russet Burbank; but tubers growth crack, can be malformed, show "thumb nail" cracks, and have hollow heart. After extensive testing in the Northeast Cooperative Trials, it has been discarded from further trial.

CHIPBELLE - Released by USDA as a chipping variety with late maturity. Tubers are short oblong, buff colored, rough, and very poor in general appearance. Specific gravity of tubers has been high but yields erratic. Chipbelle does, however, have resistance to verticillium

wilt, net necrosis, and golden nematode. Tuber defects such as hollow heart, growth cracks, and misshapen tubers are a problem with Chipbelle. Some reports of internal problems have been reported when held at high storage temperatures.

CHIPPEWA - A very old medium late maturing variety that produces large elliptical oblong shaped very bright tubers. Internal flesh color is very white. Chippewa yields well, has low specific gravity, but does not process. It has good ratings for boiling and baking. Some of the more southerly states in NE107 have shown interest in this variety.

CONESTOGA - A recent release from Agriculture Canada and was tested under clone number G712-1. Conestoga is a medium maturing variety with resistance to leafroll, net necrosis, and common scab. Tubers are round, white skinned, and poor to fair in appearance. Yields have been less than Kennebec with about equal specific gravity. Processing and storage ability have not been good. It has been eliminated from Sangerville because of lack of interest by the cooperators.

CRYSTAL - A medium late maturing variety recently released by North Dakota. Tubers are oblong, white, and tend to be toward the small size classes. Crystal has resistance to common scab and verticillium wilt. Yields varied both higher and lower than Kennebec among the test locations. Specific gravities were equal to Kennebec. Processing, storage, and culinary data are not available at this time. The seed sources used in 1983 developed high amounts of seedpiece rot.

DELTA GOLD - A very old clone released recently by Maine and USDA because of its yellow flesh and exceptional baking qualities. Tubers are round, white skinned, and very attractive. Yields have not been as high as Kennebec but specific gravity has been much higher. As a commercial variety, yields are not competitive with other medium late varieties but as a variety for small farm and garden production, it may have a place.

DENALI - A medium maturing, chipping variety from Alaska. Tubers are round, buff colored, and quite attractive. In the Northeast variety trials, yields have been erratic, chip colors variable, and specific gravities high. Storage characteristics are not particularly good, preparation losses quite high, and culinary qualities questionable.

GREEN MOUNTAIN - A very old high yielding, high dry matter variety with exceptionally good baking characteristics. It was the primary variety for many years in Maine, New Hampshire, and Vermont. In the few trials where it has been grown in recent years, it lives up to its high yielding reputation. It does not chip or process well, but takes scab and net necrosis very easily.

HAMPTON - A New York variety tested under clone number NY63 and as yet has not been officially released for commercial production. Hampton is a late maturing variety with round, buff colored tubers. Hampton has produced from good to excellent yields and only average specific gravities. Culinary qualities have been satisfactory but fried colors have not been good. Hampton has golden nematode resistance.

HUDSON - The first golden nematode resistant variety developed in New York. Hudson has late maturity, produces large oblong tubers, with high specific gravities and excellent culinary characteristics. Yielding ability has been erratic in the Northeast; and because of lack of interest, Hudson was eliminated from Sangerville. Now a few years later, it is one of the varieties in big demand by Long Island and seed producers in Maine and New York.

ISLANDER - A 1983 release from Maine. A medium late maturing variety tested under clone number AF186-5. Islander has resistance to common scab, net necrosis, and golden nematode, hence Long Island's interest in this variety. Tubers are oblong with a white, lightly netted skin. This variety yields about the same as Kennebec, but has lower specific gravity. Chip and french fry colors have been

acceptable. It has received good reports in that it seldom has internal heat necrosis in southern production areas. Tubers do tend to be quite rough and grow quite large.

JEMSEG - An early maturing, white, round tuber type variety from Agriculture Canada. Because of its earliness, it always shows up as a good yielder with good specific gravity. Jemseg does not process, but has fair to good culinary characteristics. Jemseg sizes its tubers very early so may find a place for early market and gardens.

KATAHDIN - The old faithful standard for late maturing varieties and clones. Tubers are round, white, and can be attractive if grown on good soils in a long rotation. Tubers do, however, show rhizoctonia sclerotia and are very susceptible to scab. Katahdin has shown good field resistance to leafroll, net necrosis, and mosaics. Katahdin has good production versatility and in 1983 was certainly the variety that yielded even under adverse conditions. Katahdin is still a very dependable all purpose variety that presents a challenge to new clones in the round, white category.

KENNEBEC - A medium maturing standard variety in the Northeast variety trials, it is a good "old" dependable variety. Tubers of Kennebec are short-oblong, white and thin skinned, and attractive when grown in a good rotation. This variety has resistance to net necrosis and tolerance to late blight. Yields are generally good and it appears to lack drought tolerance. It has been an all around chipping variety grown over a very wide range of soil, climatic, and cultural conditions. I have heard that the demand for seed of Kennebec has returned to a very strong high for 1984.

MICHIBONNE - A medium late maturing variety from Michigan. Tubers are buff colored, round, rough, and not very attractive. Trials in the Northeast have indicated that this variety is about equal to Kennebec in yield, lower in specific gravity, and unacceptable for processing. It has been discarded from further trials in the Northeast.

MICHIMAC - Another Michigan variety with medium maturity and very susceptible to scab. Tubers are round, tan, rough, and very unattractive. Yields, specific gravities, fried colors, storage ability, and percent defects have been unsatisfactory. It has been discarded from the Northeast variety trials.

MONONA - A medium early maturing chipping variety that has some resistance to verticillium wilt and mosaics. Monona has round, white, and very attractive tubers. Acreage has declined in recent years because of low yields and newer chipping varieties. Monona, however, is still a dependable variety in terms of chip color, storage ability, culinary qualities, and marketability, if it does not chip.

NOBLESS RUSSET - Supposedly a mutation from Russet Burbank. In the first and last years of trial, it yielded less than Russet Burbank, had a higher percentage of knobs and other defects, and hollow heart.

NORCHIP- A medium early chipping variety with resistance to common scab. Tubers are round, white, small, and rough in general appearance. Yields have been very erratic and internal discolorations after storage have decreased its popularity. Very few locations continue to test Norchip.

NORLAND - A very early maturing red skinned variety with oblong tubers with resistance to common scab. Norland has very good culinary qualities, attractive tubers, and poor tolerance to dry growing conditions. It held popular appeal for early fresh market, home gardens, and as an early chipping variety. Its popularity has declined in favor of Caribe, Jemseg, and Yukon Gold for the above markets.

OCEANIA - A USDA release tested under clone number B6969-2. Oceania is a medium maturing variety with round, buff colored, and fairly small tubers. Oceania has some mosaic and net necrosis resistance. Yields and specific gravities are about the same as Superior.

Chip colors have been variable, hollow heart and tuber defects high, and storage quality poor.

ONAWAY - An old timer from Michigan which has early maturity and common scab resistance. Tubers are round-oblong, cream colored, and rough if allowed to attain large sizes. Onaway has high yields, low specific gravity, poor appearance, many tuber defects and hollow heart, and poor processing ability. The large tubers and high yields, however, have touched off another round of testing.

PENN 71 - A late maturing chipping variety that produces round, white, and very rough tubers. It does not store well nor have good culinary characteristics. It does yield well, has good gravity, good chip color, and good french fry color. This variety was discarded in 1979 and again in 1983 from increase in Sangerville.

PUNGO - A medium early maturing variety from North Carolina that produces round, buff colored, and very rough tubers. It is used as a standard in the southern states. Pungo yields well, stores poorly, and usually has a lot of growth cracks and hollow heart. It does not process and makes a very unattractive fresh market pack.

RED PONTIAC - Another old variety which was a mutation from Pontiac released in 1938. Brought back for testing by our southern states, it has not sparked much interest for domestic production but for export it apparently has some demand. With no known disease resistance, it may not be popular very long. Tubers are round-oblong, red colored, and fairly attractive. Yields are very good, gravity very poor, and storage qualities very poor. It does not process or show any promise for fresh market.

REDSEN - A medium early, red skinned variety from North Dakota tested under clone number ND146-4R. Redsen has oblong tubers which lose their color very rapidly after harvest. In first year of trial, it did have good chip colors, low yields, low specific gravity, and poor reception in the Northeast trials. Culinary, storage, and

reconditioning characteristics unknown at this time. Redsen does, however, have a high degree of tolerance to potato scab.

RHINE RED - A medium maturing, red skinned variety from Wisconsin. Tubers are round, red, unattractive, and low in specific gravity. In a single trial in Maine, it yielded less than Kennebec with very small tubers. It does not have acceptable fried colors. Storage and culinary qualities are not available at this time.

ROSA - A late maturing, golden nematode resistant variety released by New York. Tubers are round, buff colored, pink-eyed, and only fairly attractive. Rosa did very well in yield in 1983 and was higher than Katahdin in specific gravity. Rosa stores well, has good culinary characteristics but does not have good chip colors.

RUSSET BURBANK - The most popular variety in acreage on the North American continent. It is a very late maturing variety but has exceptional storage ability, good fried colors, and is very popular for fresh market. In recent years, its popularity in the Northeast has decreased because of the high percentages of knobby and misshapen tubers. It is really too late in maturity for production in the Northeast, but to date the so-called Eastern Russets have not replaced the Russet Burbank.

RUSSETTE - A USDA, late maturing russet tested under clone number B7583-6. Russette has resistance to verticillium wilt and net necrosis. Tubers are medium long, cylindrical, and attractively russeted. Even though tubers have a tendency to be small, yields have been good and with many less defects than Russet Burbank. Russette has good storage ability, good processing ability, and produces attractive tubers. At this time it appears to be a good russet variety if we can increase average tuber size.

SACO - A late maturing, round rough white skinned variety developed as a variety for starch production in 1955. It does not store well, but does have good fried color. We increased or brought back Saco

as a potential for potato flake production, but the plant closed and we have again discarded seed production from Sangerville.

SEBAGO - A late maturing, round, cream colored variety with late blight and virus X resistance. An old multi-purpose variety that does well under a wide range of soil, climatic, and cultural conditions. Yields are generally good, specific gravity usually low, processing ability poor, and storage qualities good.

SHEPODY - A medium late maturing variety released by Agriculture Canada for french fry processing and fresh market (count boxes). Tubers are oblong to long, buff colored and generally very attractive in appearance when grown in cool climates. Shepody does not do well in warm growing conditions. Yields have been good to excellent with good specific gravity. Shepody has resistance to verticillium wilt and tuber fusarium and phoma rots. Like most long type tuber varieties, misshapen tubers, hollow heart, and off-type tubers are a problem but to date all of these defects have not been as bad as Russet Burbank. Growers in New Brunswick, Canada have increased the acreage of Shepody dramatically.

SIMCOE - An early maturing, round, white variety from Agriculture Canada (Guelph) and tested under clone number G6880-1. Simcoe has resistance to common scab, late blight, and golden nematode. Yields, specific gravity, chip color, storage ability, and appearance ratings have been good. In some markets it could be a replacement for Superior.

SUPERIOR - A medium early maturing variety with resistance to common scab. It is used as the standard for early and medium early varieties and clones grown in the Northeast trials. Tubers are short oblong with a scurfy skin but still quite attractive in appearance. Acreage in Maine increased rapidly until 1982 but appears to be decreasing because of poor yields in two successive years. Superior usually chips well but has poor storage ability.

WAUSEON - A medium late maturing variety with resistance to late blight, net necrosis, common scab, and golden nematode. Tubers are round-oblong, very attractive, and do not process well. Yields of Wauseon have been a little less than Kennebec and specific gravity has been very good. Wauseon has good culinary and storage characteristics.

YANKEE CHIPPER - A recent release from Maine and was tested under the clone number AF205-9. Yankee Chipper is a medium maturing variety that produces white, oblong tubers with fair general appearance. This variety has resistance to virus X, golden nematode, and net necrosis. Yielding ability was somewhat less than Kennebec in 1983, but specific gravity was about the same. Storage, culinary, and processing characteristics have been about average. It does produce acceptable chip colors. It is not a super spud but may find a place as a chipping variety.

YANKEE SUPREME - Another 1983 release from Maine that was tested under clone number CC26-1A. This is a medium early variety that produces round to oblong tubers that are cream colored with fair to good general appearance. Yields and specific gravities have been slightly better than Superior. Storage, processing, and culinary characteristics are better than Superior. It does not chip well. Some persons predict it will replace Superior as a medium early variety. The senior author does not agree because Yankee Supreme does not have resistance to common scab which is one of the major reasons why the scab resistant Superior has been popular.

YUKON GOLD - An early maturing, yellow fleshed variety from Agriculture Canada (Guelph). Tubers are mostly oblong with a yellow-white skin color that gives the variety a distinctive characteristic. Yields have been quite high and specific gravities very high. It probably will not make a big impact as a commercial variety but as a specialty variety, it may find a place.

AF92-3 - A medium late maturing Maine clone that has been around for some time. AF92-3 has resistance to acid scab, common scab, net necrosis, verticillium wilt, late blight, and virus X. Tubers are round-oblong, white, and quite rough in general appearance. Yields have been fair in the Northeast trials but specific gravities have been erratic. Only two locations (not in the Northeast) have requested seed for 1984.

AF201-25 - A medium late maturing clone with resistance to late blight, golden nematode, and net necrosis. Tubers are oblong-long, white skinned, with poor general appearance. After three years of trials, it has been discarded from Sangerville because of low yields, small tuber sizes, lack of storage ability, and poor fried colors.

AF222-1 - An early maturing clone with resistance to net necrosis, common scab, and acid scab. Tubers are round, white, and fair in appearance. Chip colors have been good. After two years of testing, it has been discarded from Sangerville because of low yields, small tuber sizes and high ratings for tuber defects.

AF236-1 - A medium late clone with resistance to common scab, early and late blight, and net necrosis. Tubers are short-oblong, white skinned, with good general appearance. Yields have been less than Kennebec but specific gravities have been higher than Kennebec. Tuber defects are quite high, but it had good chip color in Maine and poor chip color in New Jersey. It has good storage, processing, and reconditioning ability.

AF238-21 - A medium maturing variety with oblong-round tubers resistant to net necrosis. Tuber sizes were very small, yields not bad, but tuber defects and storage ability very low. This clone has been discarded from further seed increase at Sangerville.

AF238-66 - A medium maturing, round-oblong tuber clone with good yields and specific gravity but very poor storage quality. Because of this characteristic, it has been discarded from increase at Sangerville.

AF303-5 - A medium late maturing clone with resistance to verticillium wilt, net necrosis, early blight, and rhizoctonia. Tubers are round, white, and fair to good in general appearance. Yields have been equal to Kennebec and specific gravities slightly higher. Culinary qualities have been good, chip colors poor, storage characteristics poor, and tuber sizes toward the smaller sizes.

AF307-5 - A medium maturing clone with resistance to net necrosis and late blight. Tubers are oblong, white, and very attractive in general appearance. In trials, yields have been less than Kennebec and specific gravities about the same. Chip colors have been poor, tuber sizes small, storage ability questionable, and over the Northeast test area only marginal for further testing.

AF330-1 - A medium early maturing clone with round, white-netted tubers and resistance to net necrosis. General appearance, storage ability, culinary characteristics, and tuber size distribution are all very good. Chip colors have been good. Yields and specific gravities have been lower than the Superior standard.

AF332-9 - A medium maturing, round type, and buff colored clone with resistance to verticillium wilt, net necrosis, and golden nematode. Yields and specific gravities are equal to Kennebec. Storage ability and culinary characteristics are better than Kennebec. Chip colors have been too dark.

AS201-10 - A medium early, round type, buff colored variety with resistance to net necrosis, late blight, acid scab, and golden nematode. After two years of testing, it has been discarded because of low yields, low specific gravities, small tuber sizes, and poor storage ability.

B5662-WV13 - A medium early maturing clone from West Virginia. Tubers are round, white, and have fair to poor general appearance. In many respects, it has all of the same good and poor characteristics of Superior except not quite so good in chip color. Yields and specific gravities have been less than Superior.

B6043-WV6 - A medium late maturing clone that produces round-oblong tubers, and resistance to late blight. This variety has been around for some time and has had yields equal to Kennebec. General appearance of tubers has been good and storage ability very good. Chip color has been unsatisfactory. Because of lack of interest by the NE107 Cooperators, it has been discarded from Sangerville.

B6928-WV14 - A medium late clone from West Virginia that produces round, white, rough tubers. Yields are less than Kennebec but specific gravities about the same. Storage ability and culinary qualities are satisfactory. Chip colors are too dark and it has a tuber size problem.

B6949-WV3 - A medium late clone that produces round, white, rough tubers. It has good storage ability, very good tuber sizes, and dark chip colors. Yields and specific gravities have been equal to Kennebec. Future of this clone is questionable.

B7019-WV1 - A medium late maturing clone that produces round-oblong tubers that have very good general appearance. Yields, specific gravities, and chip colors have been poor. Storage ability and culinary qualities have been good.

BR5991-WV16 - A medium late maturing clone with round, buff colored tubers. General appearance during the test period has been good. Storage ability and yields have been good. Chip colors have been too dark, and culinary qualities acceptable. Due to lack of interest by the NE107 Cooperators, it has been discarded from Sangerville but the Seed Board may increase some seed for grower testing in Ohio.

BR7088-18 - A medium late, common scab resistant clone with round, buff colored tubers. General appearance and specific gravities have been better than Kennebec. Yields have been less than Kennebec, tuber defects higher, and storage length somewhat less. Chip colors have been erratic among locations and between years. Future disposition is uncertain for this seedling.

BR7093-23 - A late maturing clone with resistance to verticillium wilt and early blight. Tubers are oblong, white, and have excellent general appearance. Yields and specific gravities have been better than Katahdin. It has good storage ability, good culinary qualities, and good chip colors. This variety will be named Campbell 14 in the near future and seed source will go for maximum increase in 1984.

C7232-4 - A medium early maturing clone with no known disease resistance but exceptional chip color and reconditioning ability. Tubers are round-oblong, buff colored with good to fair general appearance. Yields have been lower than Superior and gravities slightly higher. Yields, however, around the Northeast have been erratic. It has good processing, culinary, and storage ability. Its chief attribute is the ability to chip from very cool storage.

C7490-2 - A medium early clone with oblong, white, and unattractive tubers. Yields have been lower than Superior, storage quality poor, and tuber sizes small. On this basis it has been discarded from seed increase at Sangerville.

C74109-8 - A medium late maturing clone with late blight resistance and oblong, white tubers. General appearance has been very good, chip colors poor, and storage ability not particularly good. Tuber sizes have been toward the smaller sizes and tuber defects quite high. The future of this clone is questionable.

CF7353-1 - A medium late maturing, purple skinned clone with resistance to early blight, verticillium wilt, net necrosis, and hollow heart. Tubers are round-oblong, attractive, and fair to poor for processing. Yields and specific gravities are equal to Kennebec, have high percentages of defects, and good tuber size distribution.

CF7358-14 - A medium maturing round-oblong clone with resistance to net necrosis, common and acid scab, virus X, and golden nematode. Tubers have good general appearance, good chip colors, and high tuber defects.

This clone will be named Sunrise in the near future.

CF7523-1 - A medium early, round, white clone with resistance to net necrosis, early blight, verticillium wilt, and golden nematode. Yields have been much higher than Superior and specific gravities a little lower. General appearance has been good, storage ability acceptable, but it does not chip or recondition.

CF7587-5 - A medium maturing clone with resistance to net necrosis, verticillium wilt, acid scab, and common scab. Tubers are oblong, buff colored, and only fair in general appearance. In first year of trial at Presque Isle, yields were low, specific gravities high, percent tuber defects high, and chip colors dark. Processing, storage, reconditioning, and preparation data not available at this time.

CF7688-9 - A medium maturing, round, white variety with resistance to net necrosis. Tubers are quite attractive but chip colors not quite satisfactory. Yields have been less than Kennebec but specific gravities much higher. Processing and culinary characteristics were satisfactory but storage period was quite short.

CF72107-5 - A medium late, round, white clone with resistance to net necrosis, early and late blight, and golden nematode. Yields have been less than Kennebec and specific gravities about the same. General appearance is very good. This clone has a short dormancy period, a small tuber problem, and is very sensitive to metribuzin injury.

CF72111-5 - A medium maturity clone that produces oblong, white tubers resistant to net necrosis. In first year of trial in the Northeast, it was not received very well. Yields and specific gravities were about the same as Kennebec. It did not have good chip colors and tubers were toward the small sizes. Processing, culinary, storage, and preparation data are not available at this time.

CF74135-3 - A medium early clone with resistance to net necrosis, common scab, and acid scab. Tubers are round, white, and fair to good in

general appearance. Yields and specific gravities have been less than Superior. Tubers have been toward the smaller sizes and have had quite a few defects. Chip colors have been satisfactory, storage characteristics poor, and culinary qualities questionable.

CF76183-2 - An early maturing clone with resistance to late blight, common scab, and net necrosis. Tubers are oblong-long, quite small, and very good in general appearance. Chip colors were very good in 1983, but tubers had a high percentage of defects. Culinary qualities were not good but storage characteristics were very good.

CF77154-10 - An early maturing clone with resistance to net necrosis and golden nematode. Tubers are round-oblong, white, and not very attractive. In first year of trials, yields and specific gravities were both higher than Superior. It had excellent chip colors but tubers were quite small. Storage and culinary characteristics are not available at this time.

F73008 - A late maturing clone from Agriculture Canada with resistance to late blight. This is also a yellow fleshed clone that produces oblong, buff colored tubers. In three years of trials, yields have been higher than Katahdin and specific gravities about the same. Clone F73008 has excellent storage, processing, and culinary characteristics. Canada indicates that this clone is a good prospect for off-shore export.

MN7973 - A medium maturing clone from Minnesota with resistance to common scab. Tubers are oblong, tan and slightly netted, and fair to good in general appearance. Yields and specific gravities have been less than Kennebec and tuber sizes small. In two of three years, chip colors were satisfactory. Storage ability and culinary qualities have been satisfactory.

MN8224 - A medium maturing scab resistant clone from Minnesota. Tubers are round, rough, and toward the small sizes. General appearance,

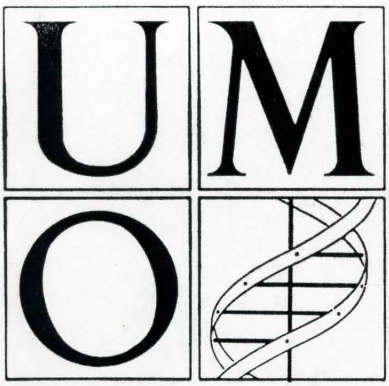
storage ability, and culinary qualities are very poor. This clone will be discarded from future trials.

MN9319 - A medium late clone with resistance to common scab and late blight. Tubers are oblong, tan and heavily netted with very good appearance. To date, yields have been less than Katahdin but specific gravities higher. Tuber sizes were very good but storage ability poor. It did have good chip colors in 1983 but after three years of testing, it will be dropped because of poor processing, culinary, and storage characteristics.

NY59 - A late maturing, round, tan colored clone from New York. Yields and specific gravities were equal to Katahdin. Data on appearance, storage, culinary qualities, and chip colors are not available at this time.

NY64 - Another late maturing clone from New York with good resistance to verticillium wilt and common scab. Tubers are round, tan, and fair in appearance. Tubers were small in 1983 and chip colors too dark. Storage, culinary, and processing characteristics are not available at this time.

WF564-3 - A medium early maturing clone that produces oblong-long tubers that are either heavily netted or lightly russeted. This clone has resistance to late blight, net necrosis, common scab, and acid scab. General appearance has been fair in Maine but some locations indicate rough appearance. Yielding ability has been very high, specific gravities low, and chip colors dark. Culinary and processing characteristics are questionable.


UM
O